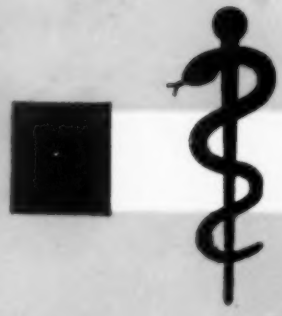
Medical TIMES

THE JOURNAL OF GENERAL PRACTICE



VOL. 83 AUGUST 1955 NO. 8

taste is as important to the young patient as effectiveness is to you. In antibacterial therapy Gantrisin (acetyl) Pediatric Suspension is useful on both counts because of its delicious raspberry flavor without "medicine" aftertaste, its wide antibacterial spectrum and notable freedom from gastro-intestinal upsets and other side effects.

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". . . results obtained with PHENERGAN in symptomatic relief of pollen hay fever were far superior to those obtained with any other antihistaminic agent."[1]

1. Silbert, N.E.: Ann. Allergy 10:328 (May-June) 1952

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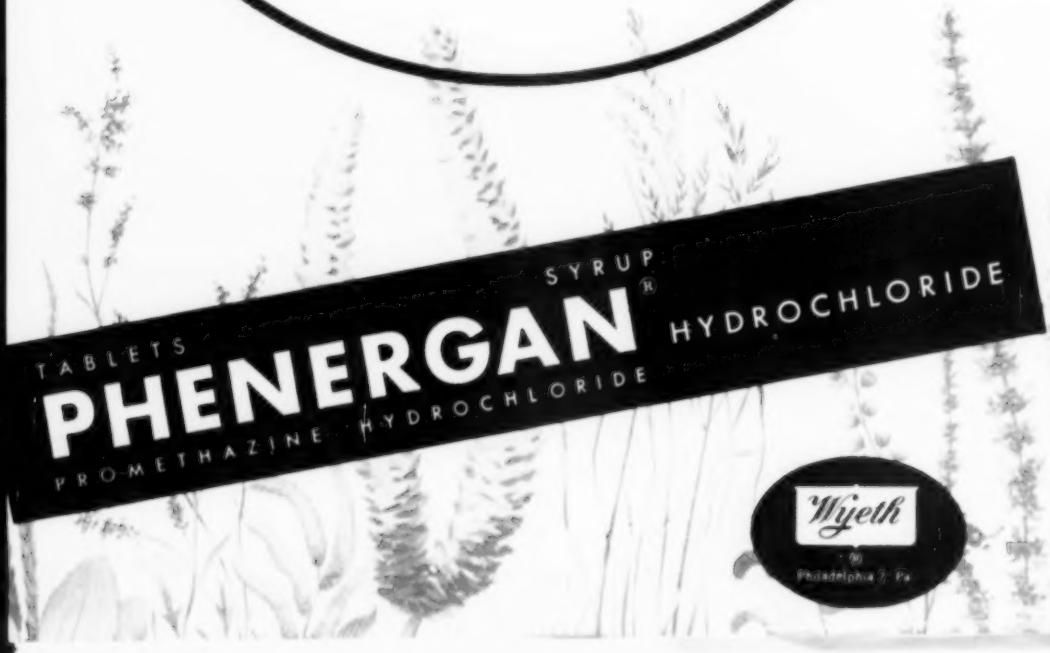

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BPA

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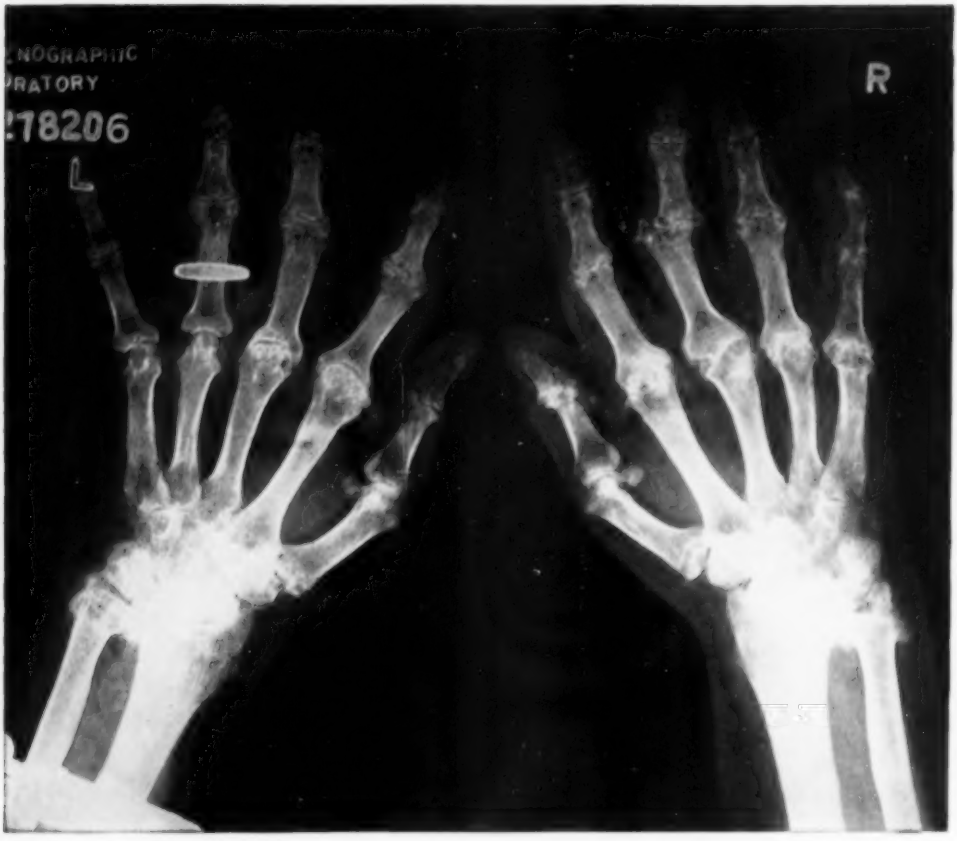

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REFERENCES

1. Peña, E. F.: Med. Times 82:921, 1954; Am. J. Surg. 87:95, 1954
2. Karnaky, K. J.: South. M. J.: 45:1166, 1952
3. Gitman, L. and Koplowitz, A.: N. Y. St. J. Med. 50:2823, 1950
4. Ross, J. W.: J. Nat. M. Assoc. 43:20, 1951; 45:223, 1953

Any patient sick enough to

Medical TIMES

THE JOURNAL OF GENERAL PRACTICE

Incorporating the Long Island Medical Journal and Western Medical Times

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Thiamine mononitrate	0.75	mg.
Riboflavin	1.25	mg.
Niacinamide	7.5	mg.
Vitamin B_{12}	2.5	mcg.
Folic Acid	0.25	mg.
Ascorbic acid (from sodium ascorbate)	75	mg.
Pyridoxine hydrochloride	0.75	mg.
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Supplied: In 46 Gm. bottles with special Lactofort measuring spoon enclosed.

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True Stories From Our Readers

Each incident described has been contributed by one of our readers. Contributions describing actual and unusual happenings in your practice are welcome. For obvious reasons only your initials will be published. An imported German apothecary jar will be sent in appreciation for each accepted contribution.

Daffy-nition

A midwife, whom I have known for a number of years, was asked on an examination the signs and symptoms of pregnancy. Her reply, "a wretchin' and a throwin' and a hatin' the men folks."

Anonymous, M.D.
Miami, Fla.

Never Underestimate . . .

One night I was called to see a new patient in a rather distant portion of the city. After getting thoroughly lost and wandering around for two hours I finally found the address.

Examination of the patient revealed a rather nasty infected throat. During the examination the patient commented that she was going to Dr. "so and so" because of her heart.

The evil thought flitted across my mind, why the devil didn't you call him. However before the thought could be translated into words the patient commented "but Dr. 'so and so' is just a cardiologist, what I need tonight is a doctor." My morale was boosted, the patient was made well and everybody was happy.

F. W. S., M.D.
Washington, D. C.

Dictionary, Anyone?

In my office records I have entered a conversation with a patient who was asked if she was having any hot flushes or menstrual difficulty. She answered, "Oh yes, I'm going through my climaline, or climadine."

F. L. K., M.D.
South Bend, Ind.

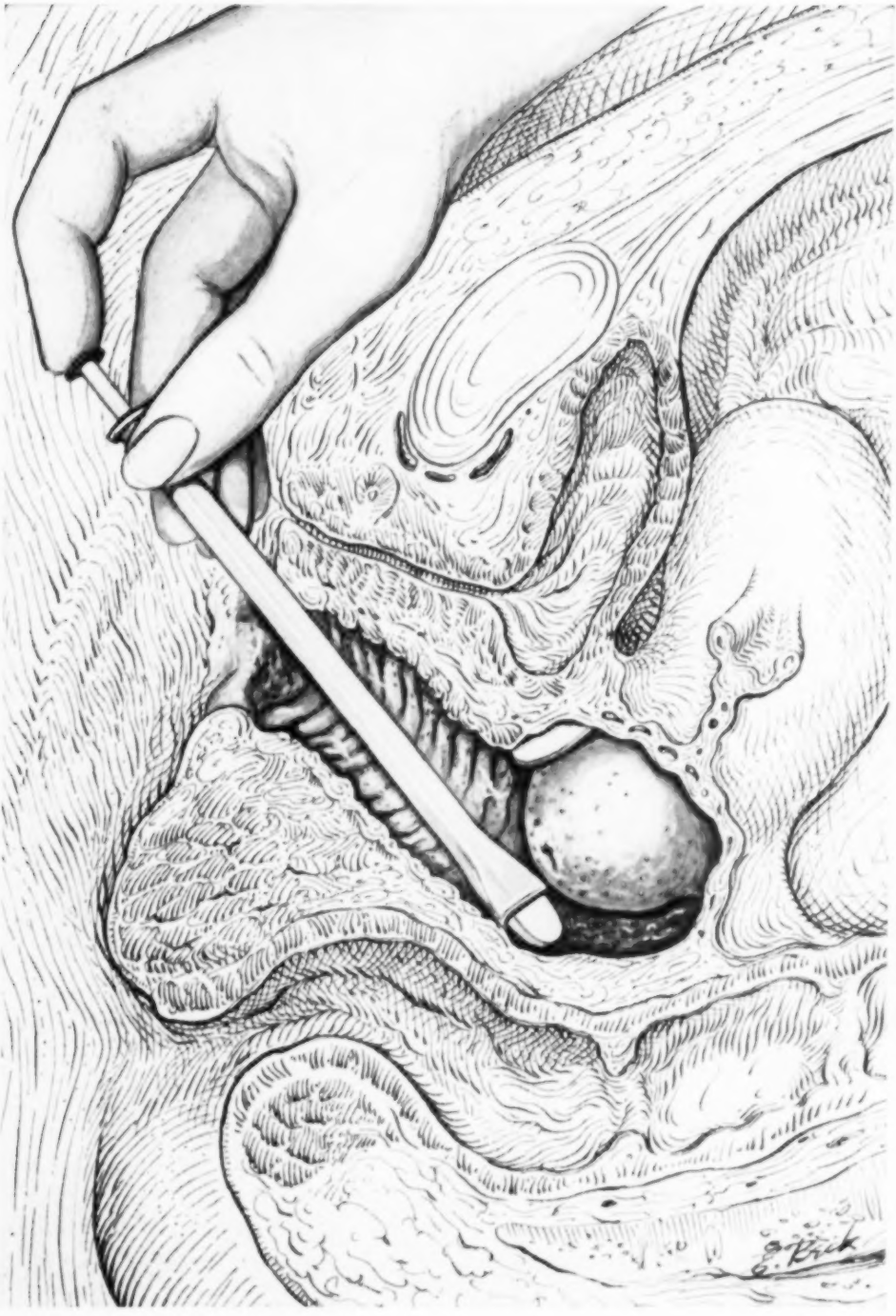
Fat, Fatter . . .

During the course of physical examinations of first year school children, I noted one youngster's report that he was obese.

His mother read him the report of his examination, and he promptly asked what "obese" meant.

On being told, his immediate re-

—Concluded on page 19a



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The restorative treatment of vaginitis with Floraquin is now further improved by a new aid to tablet insertion. Faulty insertion is no longer a failure factor in therapy.

The new Floraquin applicator is designed for simplified insertion of Floraquin tablets by the patient. This plunger device, made of smooth unbreakable plastic, places the Floraquin tablets in the fornices and thus assures coating of the entire vaginal mucosa as tablets disintegrate. The patient inserts two Floraquin tablets with the applicator in the morning and also two tablets at night, with treatment being continued through at least two menstrual periods. During menstruation it is desirable to increase medication to eight Floraquin tablets daily to combat the greatly increased alkalinity of the menstrual flow.

Treatment with Floraquin tablets may be supplemented with insufflation of Floraquin powder by the physician. Frequency of insufflation is determined by the physician, but is of prime importance immediately after the first menstrual period.

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VIOFORM® (iodochlorhydroxyquin U.S.P. CIBA)

CIBA
SUMMIT, N. J.

a/21088

—Concluded from page 19a

sponse was, "Well, he's obeser'er 'n I am"—In which respect he was absolutely correct.

J. P. G., M.D.
New Albany, Ind.

Vitamins for Whom?

The constitutionally inadequate (emotionally, i.e.) young female who had no business wasting a doctor's time (busy or not), after a fruitless 15 minutes of trying to explain that she was not sick, but she just wanted assurance that she was not too different from her friends as far as breast development goes, asked, "Doctor, do you think it would do me any good to take vitamins?" I shook my head and with due gravity stated it was too late, her parents should have taken them.

A. L., M.D.
Plainfield, Ind.

C'est difficile, non?

I came to Louisiana in 1926, fresh out of school, and also fresh from the hills of Alabama, to practice in an area with a large percentage of French-speaking people; many of whom spoke no English, many with only a limited vocabulary of English. I had two years of college French, and a limited vocabulary picked up while with the A. E. F., World War I, but my army French and college French was far from the 'Cajun French spoken by the inhabitants.

A call came late one night, to visit whom we will call, Auguste Baptiste Billedeaux. He was greatly disturbed, very uncomfortable, complaining very loudly in 'Cajun French. After an examination, I prescribed, among other things, a large, soap-suds enema, thinking that I had made it clear to him and family, how to take the enema.

Soon after arriving home again, the phone rang, a son calling. "Is that you, doc?" "Yes," I replied. "What is the trouble?" "My pa, he says he want to do what you say, but he no think he can drink that much soapy water, no."

The difficulty was solved by telling him, "Tell your pa to drink it from the other end, yes."

D. B. B., M.D.
Alexandria, La.

Brave Soul

A young Captain in our division entered the Gyn examining room. Immediately, he was sharply reprimanded by a Colonel's wife for having had her remain in "this position" for 15 minutes. Since he had been necessarily detained he commented, "That was bad, but I have been 'in this position' since August of '43." The patient jumped to her feet and left with the remark that the Colonel would look into the Captain's lack of deference.

Two days later, a letter from the Colonel arrived. The Captain was to reply by endorsement. Bravely, the Captain composed a deliberately naive answer: "I was sorry to have made such a grave error since actually I had been in the position since *July* of '42."

Strangely enough, he wasn't even transferred!

Anonymous M.D.

don't be

DOWN

on . . .

what you are not

UP *on . . .*

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Vitamin D	500 U.S.P. Units	Purified Intrinsic Factor Concentrate	0.5 mg.
Vitamin B_{12}	1 mcgm.	Iron (as $FeSO_4$)	10 mg.
Thiamine Mononitrate (B_1)	5 mg.	Iodine (as KI)	0.5 mg.
Riboflavin (B_2)	5 mg.	Calcium (as $CaHPO_4$)	145 mg.
Niacinamide	15 mg.	Phosphorus (as $CaHPO_4$)	110 mg.
Folic Acid	1 mg.	Boron (as $Na_2B_4O_7 \cdot 10H_2O$)	0.1 mg.
Pyridoxine HCl (B_6)	0.5 mg.	Copper (as CuO)	1 mg.
Ca Pantothenate	5 mg.	Fluorine (as CaF_2)	0.1 mg.
Choline Dihydrogen Citrate	100 mg.	Manganese (as MnO)	1 mg.
Inositol	50 mg.	Magnesium (as MgO)	1 mg.
Ascorbic Acid (C)	50 mg.	Potassium (as K_2SO_4)	5 mg.
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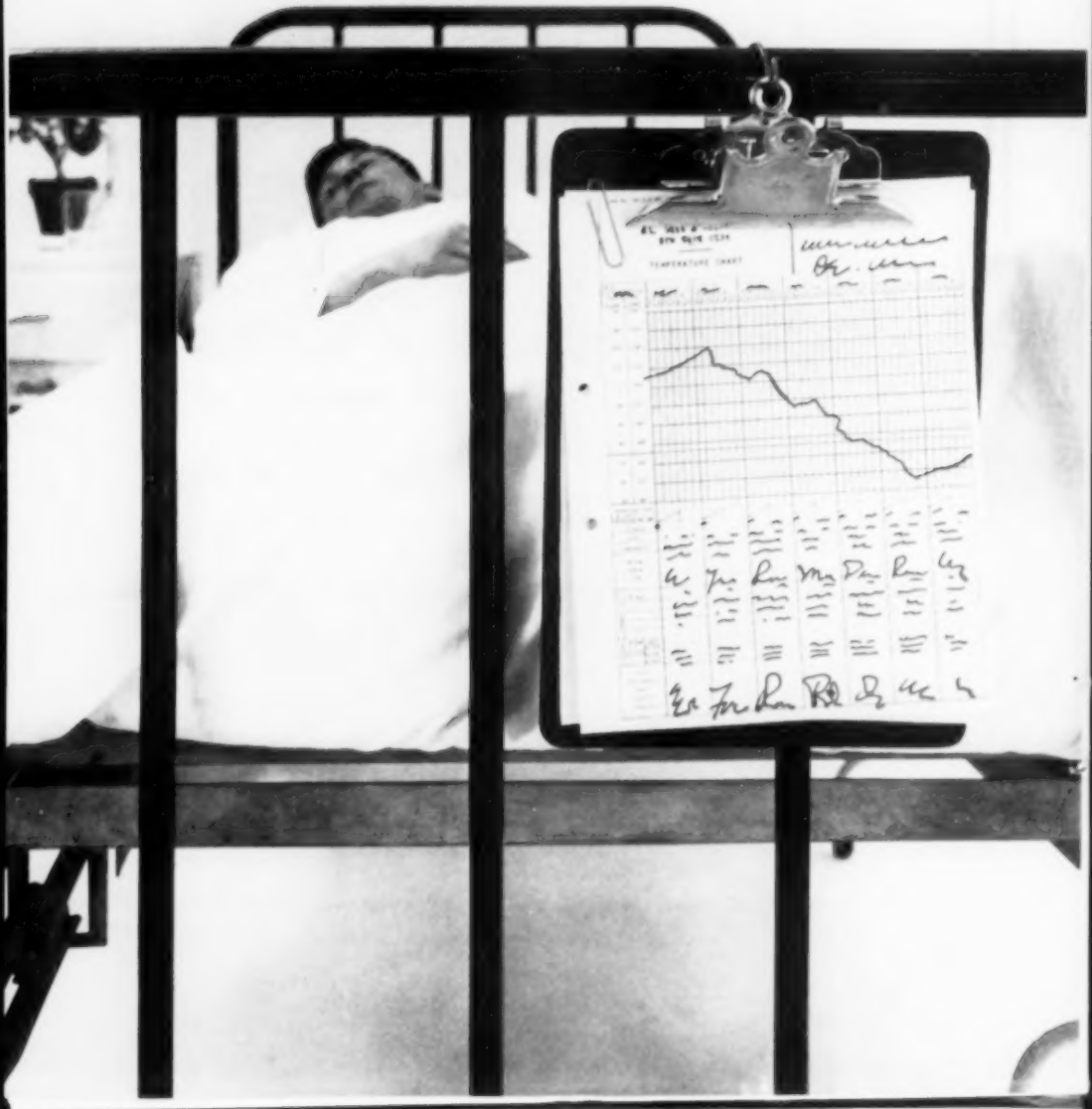

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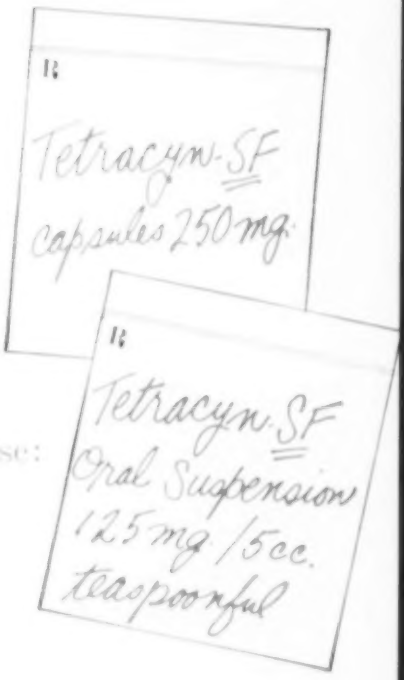
Accelerated Recovery[5]



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1. Pollack, H., and Halpern, S. L.: Therapeutic Nutrition, Prepared in Collaboration with the Committee on Therapeutic Nutrition, Food and Nutrition Board, National Research Council, Washington, D. C., 1952. 2. Marti-Ibanez, F.: Antibiotic Med. 1:247 (May) 1955. 3. Domar, R. J.; Carlozzi, M., and Wright, W. A.: Antibiotic Med. 1:296 (May) 1955. 4. Mulberg, M. B., and Michael, M., Jr.: Ann. New York Acad. Sc., In press. 5. Prigot, A.: Ibid.

† Brand of oxytetracycline.

* Trademark for Pfizer brand of antibiotics with vitamins.

Pfizer PFIZER LABORATORIES, Brooklyn 6, N. Y.
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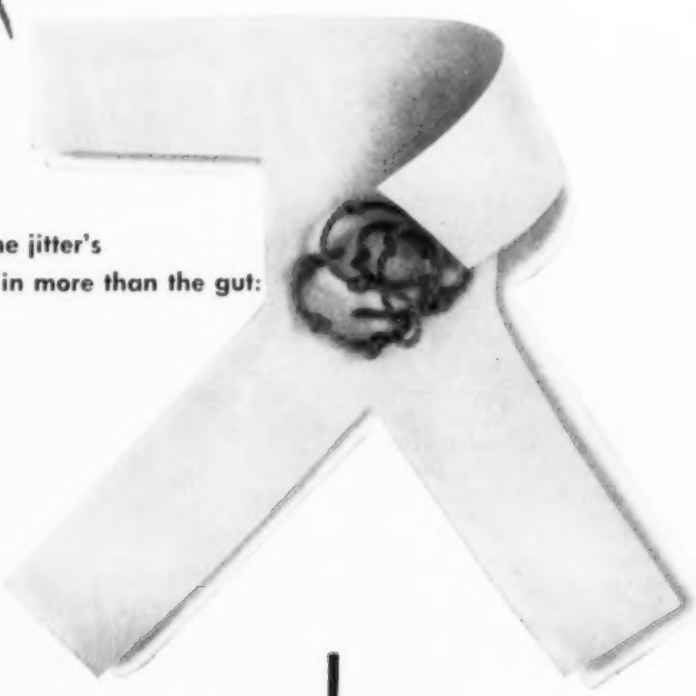
When the jitter's in more than the gut:



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Walker Laboratories, Inc., Mount Vernon, New York

*trademark

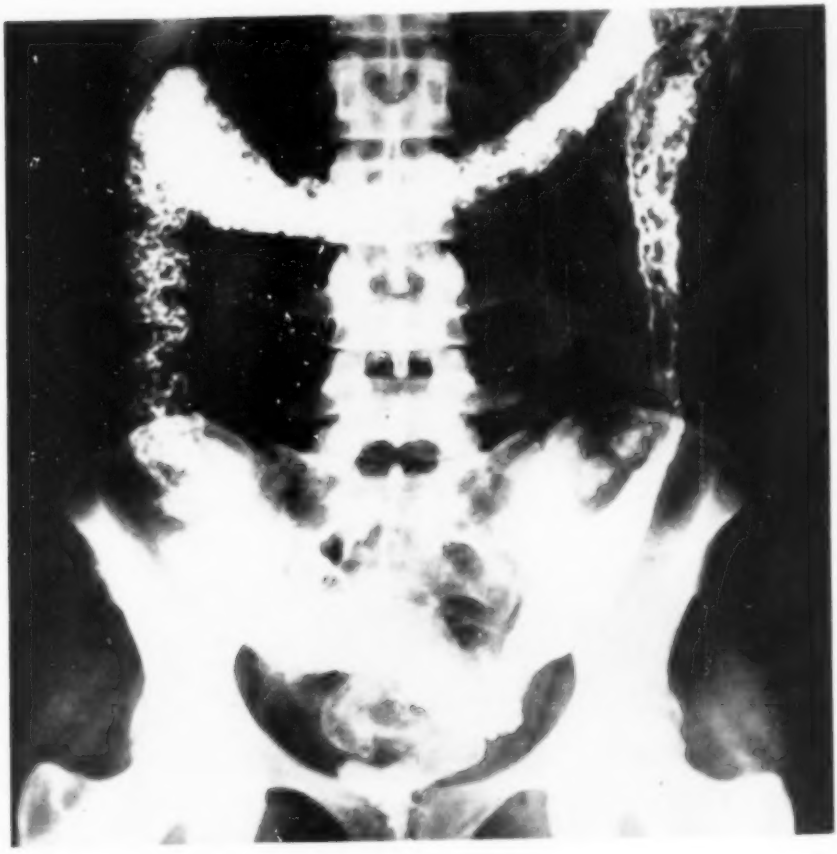
Diagnosis, Please!

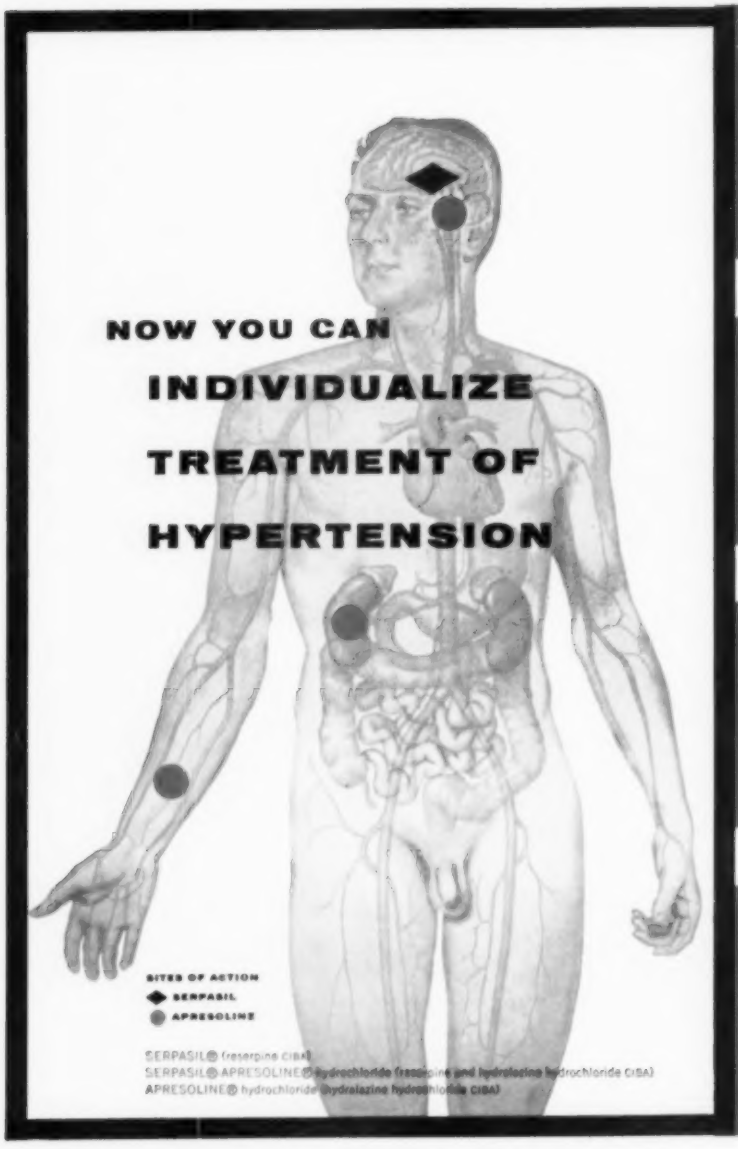
Edited by Maxwell H. Poppel, M.D., F.A.C.R., Professor of Radiology,
New York University College of Medicine and Director of Radiology, Bellevue Hospital Center

WHICH IS *YOUR* DIAGNOSIS?

1. Ulcerative colitis
2. Polyposis
3. Fecal material
4. Amebiasis

(ANSWER ON PAGE 94a)

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Crookes

Coroner's Corner

The following case illustrates how investigation at the scene of death may help to diagnose a suicidal death which was not obviously such at first glance.

The body of a young woman was found at the foot of a long flight of stairs, lying on her back, with the legs flexed under her body and her head resting on the right hand corner of the lowest step. The blade of a long jack-knife was stuck in her chest, penetrating one of the interspaces, the pericardium and the heart, and causing death by intrapericardial hemorrhage. Blood was spattered in an area about 18 inches square on the landing of the stairs, and the pocketbook of the dead woman lay close by. The investigation disclosed that the knife was the property of the deceased and had been purchased on the day prior to her death. It was also learned that the deceased had, just prior to her death, been visiting her estranged husband whose apartment opened onto the landing at the head of the stairs. Evidently failing to patch up their differences, the woman emerged onto the landing and was seen to stagger and slump to her knees. A woman who witnessed this scene, ran for assistance, but when she returned the deceased was at the foot of the stairs, having either slid or staggered to the place where she was found.

What probably happened was that the deceased, when she emerged onto the landing, had brandished the knife, probably with the intention of only wounding herself to arouse the sympathy of her husband, but in her emotion had inadvertently driven it too far into her chest. The track of the stab wound was a short one and could have been self-inflicted with only a slight degree of violence. Later, it was found that the deceased had been despondent over her marital troubles and had threatened to commit suicide. All the factors in the case were more in favor of suicide than of any other interpretation.

(From Gonzales, T. A., Vance, M., Helpern, M., and Umberger, C. P.: "Legal Medicine, Pathology, and Toxicology", Appleton-Century-Crofts, Inc.)

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Thiamine Mononitrate	3 mg.
Riboflavin	5 mg.
Pyridoxine Hydrochloride	1.5 mg.
Calcium Pantothenate	10 mg.
Nicotinamide	30 mg.
Mol-Iron	
Ferrous Sulfate	120 mg.
Molybdenum Oxide	1.8 mg.
Calcium (Elemental)**	380 mg.

*As in Streptomyces fermentation extractives.

**Phosphorus-free from calcium gluconate and calcium carbonate.

—supplied in bottles of 60 (one month's supply) and 1000 tablets.

Also, Mol-Iron with Calcium and Vitamin D, capsule-shaped tablets—for treatment of anemia of pregnancy.

On the Benefits of

Rauwiloid®

(the alseroxylon fraction of India-Grown Rauwolfia Serpentina, Benth.)

for the Hypertensive

TRANQUILIZING

Rauwiloid produces a tranquilizing effect uncomplicated by dizziness and accompanied by improvement in quality and duration of natural nocturnal sleep. This tranquilizing action begins in a few hours and reaches its peak in a few days.

SEDATIVE BUT NOT SOMNOLESCENT

A feeling of well-being is induced within 24 to 48 hours. Geriatric patients become less cantankerous; younger patients are better able to cope with the stress of daily living—without significant effect on alertness or productive capacity for work.

BRADYCROTIC

If tachycardia is present slowing of the pulse is noted after two or three days on Rauwiloid. This is especially appreciated when cardiac consciousness is part of the clinical picture.

These actions of Rauwiloid are of definite benefit in every grade of hypertension; the more so since Rauwiloid is particularly suited for long-term chronic administration, and is virtually free from side actions and allergenic toxicity. The beneficial influence of Rauwiloid bolsters the hypotensive action of potent drugs, making them effective in lower dosage and greatly reducing their undesirable side actions.

DOSAGE: Simply two 2mg. tablets at bedtime. After full effect, one tablet usually suffices.

Rauwiloid is a mixture of therapeutically desirable alkaloids, *the alseroxylon fraction*, extracted by an exclusive Riker process, and *only* from roots of Rauwolfia serpentina, Benth., grown in India. Besides reserpine, Rauwiloid contains other active alkaloids, for example, rescinnamine.

Riker LABORATORIES, INC., LOS ANGELES, CALIF.

WHAT THE INVESTIGATORS SAY:

"The symptomatic improvement, particularly the relief of headache, [the induced] bradycardia, sounder sleep, weight gain and relief of anxiety . . . was so consistent and frequently so dramatic that it must be mentioned. We agree with Wilkins that these symptomatic benefits are quite real and are the most easily identifiable effects of the drug."

Finnerty, F.A., Jr.: Am. J. Med. *17*:629 (Nov.) 1954.

•

" . . . [Rauwiloid] produces certain desirable effects such as mild sedation without somnolence and a general sense of well-being . . . "

Livesay, W.R., et al.: J.A.M.A. *155*:1027 (July 17) 1954.

•

" . . . more than 70% of the patients said, unasked, that they felt better . . . 'I sleep better,' 'I am less jittery' and 'I feel good' were often heard."

Lipsett, M.B., et al.: California Med. *81*:412 (Dec.) 1954.

•

"Its [Rauwiloid's] relaxing action may be responsible in part for the marked symptomatic relief it affords, especially in anxious, neurotic, hypertensive patients."

Wilkins, R.W.: Mississippi Doctor *30*:359 (Apr.) 1953.

new product FILLS THE

THERAPEUTIC GAP IN RHEUMATIC CONDITIONS

Armyl + F

for • the patient who fails to respond to salicylates alone
• the patient who needs long-term management of residual symptoms

Each Armyl + F capsulette supplies:

Compound F (hydrocortisone-free alcohol).....2.0 mg.
Potassium Salicylate (5 gr.).....0.30 Gm.
Potassium Para-aminobenzoate (5 gr.).....0.30 Gm.
Ascorbic Acid.....50.0 mg.

Bottles of 50 capsulettes

Armyl + F is a new antirheumatic and anti-inflammatory agent with analgesic effects. It gives you significant advantages of combined simultaneous action in arthritic-rheumatic disease.

• rheumatoid arthritis and spondylitis (mild and moderately severe) • osteoarthritis (when pain is due to inflammation) • rheumatic fever (subacute phase of mild degree; subclinical relapses in children) • gout—subacute and interval gout (along with purine restriction) • bursitis, myositis, tendinitis, synovitis, fibrositis, neuritis

THE ARMOUR LABORATORIES
A DIVISION OF ARMOUR AND COMPANY • KANKAKEE, ILLINOIS

What's Your Verdict?

Edited by Ann Pollock, Member of the Bar of New Jersey

In an application to the Court by a group of physicians for a review of the denial of their continued use of the county hospital facilities, the following facts were disclosed:

The physicians were four of the five practicing physicians in the county, and the county hospital was the only one therein. Included in the resolutions passed by the board of supervisors of the hospital was a provision denying further use of the hospital to any doctor refusing to render professional assistance when requested by any other doctor using the hospital facilities.

Legislation providing for the county hospital permitted paying patients therein also. These were privileged to select their own physicians who were to be allowed the use of the hospital.

Each of the four applying doctors violated the board's resolution by refusing their assistance when requested. Notices were sent to each of them denying further use of the hospital facilities. As a result, this petition to the Court was made.

The attorneys for the physicians contend that the resolution is an unreasonable, arbitrary and capricious regulation, and unconstitutional in that it deprives a physician of his liberty and contractual right to choose whom he will as a patient. Furthermore, as paying patients in the hospital are permitted by law to engage their own physicians, any rules or regulations determining the use of the hospital must be reasonable, which the regulation in question is not.

The attorneys for the board of supervisors insist that physicians have no constitutional or statutory right, or right per se, to the use of a public hospital. A hospital may therefore provide rules for its regulation, to the exclusion of those who will not comply with them.

The lower court affirmed the action of the board excluding the physicians. On appeal, how would you decide?

* * * * *

The judgment of the lower court was reversed on appeal:

"Licensed physicians have no constitutional right to practice their profession in a hospital maintained by state or political subdivision. Municipalities may regulate and control their hospitals and prescribe reasonable rules and regulations to be followed by physicians using the facilities. But the regulation under consideration goes beyond and transcends the ordinary and commonplace regulations and invades the personal liberty and contractual rights of both the patient and the physician. To accede to the rule by what virtually amounts to compulsion would be repulsive and beneath the dignity of a professional man. We therefore hold that the resolution was unconstitutional."

Based on opinion of
Supreme Court of Arizona

the Resions

...specifics in diarrhea

The RESIONS offer two effective compounds for treatment of almost any diarrheal condition found in clinical practice.

The RESIONS act by ion exchange . . . to attract, bind and remove toxic materials in diarrheas caused by food or bacterial toxins, by prolonged use of certain drugs, and in general infectious diseases.

The RESIONS *are safe* because they are totally insoluble and non-toxic.

RESION therapy will control about 90% of common diarrheas.

RESION P-M-S is intended specifically for rapid control of those rare diarrheas caused by Gram-negative organisms; to prevent secondary bacterial infection; in mycotic diarrhea following the use of the broad-spectrum antibiotics, and to inhibit the enteric growth of *C. albicans* (Monilia).

Resion

time-tested, adsorbent effectiveness

Polyamine methylene resin	10%
Sodium aluminum silicate	10%
Magnesium aluminum silicate	1.25%

CONGO MAGIC
(Dysentery Fetish)
RESION therapy now works scientific magic against diarrhea.

and

Resion P-M-S

A new formula providing antibacterials to combat bacillary and fungal vectors

NATIONAL

Each 15 cc. contains the RESION formula plus:

Polymyxin-B sulfate	125,000 units
Phthalylsulfacetamide	1.0 Gm.
Para hydroxybenzoic acid esters	0.735 Gm.

Dosage: RESION—1 tablespoonful hourly for 4 doses; then every 3 hours while awake. RESION P-M-S—1 tablespoonful hourly for 3 doses; then 3 times daily.

Supplied: RESION, in bottles of 4 and 12 fluid ounces. RESION P-M-S, bottles of 4 fl. oz.

THE NATIONAL DRUG COMPANY
Philadelphia 44, Pa.

infection
inflammation
injury
allergy

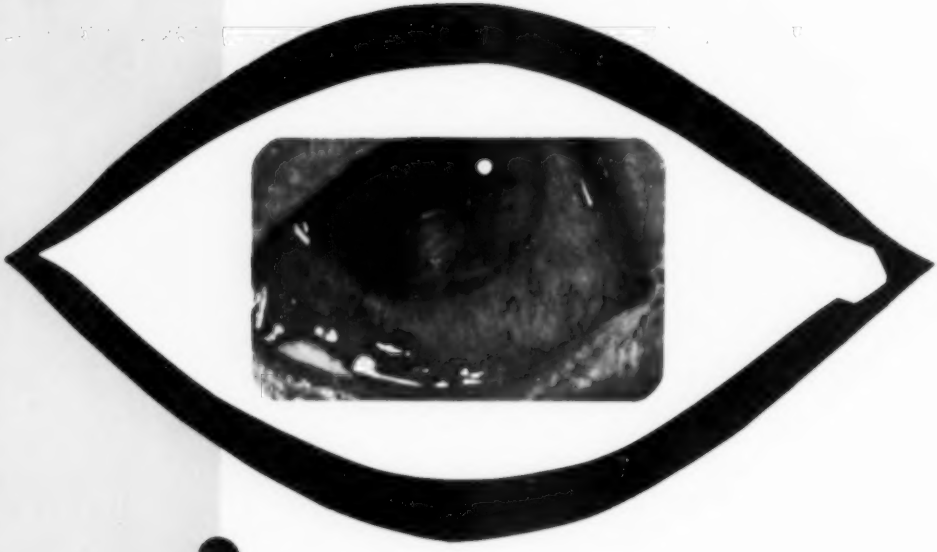
SODIUM SULAMYD® solution 30%-10% – ointment 10%

CORTOMYD® – Cortisone and Sodium Sulfacetamide suspension

CORTOGEN® – Cortisone Acetate – 0.5%-2.5% suspensions

CORTICLORON® – Cortisone and Chlor-Trimeton® suspension

ASSURED STERILITY



curbs inflammation

combats infection

protects the injured eye

Sodium Sulfacetamide 10%

Cortisone Acetate 1.5%

the doctor depends on the baker for bread

the baker depends on the doctor for health

both depend on the hatter for hats

There is a basic principle of interdependence which occurs in almost every phase of life. It exists in nutrition, too, where the various dietary elements form part of a vast interrelated structure.* This concept has been carefully observed in the formulation of "Clusivol" for multiple vitamin-mineral supplementation.

"CLUSIVOL"®

provides all vitamins and minerals known to be essential for balanced nutrition—also other accessory food factors and trace elements believed to be significant.

The average daily dose (2 capsules) provides:

Vitamin A (synthetic)	25,000	U.S.P. Units	Biotin	0.1	mg.
Vitamin D (irradiated ergosterol)	2,000	U.S.P. Units	*dl*-Methionine	20.0	mg.
Vitamin C (ascorbic acid)	150.0	mg.	Cobalt — from cobalt sulfate	0.1	mg.
Thiamine mononitrate (B_1)	10.0	mg.	Copper — from copper sulfate	1.0	mg.
Riboflavin (B_2)	5.0	mg.	Fluorine — from calcium fluoride	0.025	mg.
Pyridoxine HCl (B_6)	1.0	mg.	Iron — from 4 gr. ferrous sulfate exsic.	76.2	mg.
Panthenol, equivalent to of calcium pantothenate	10.0	mg.	Calcium — from dicalcium phosphate	165.0	mg.
			Manganese — from manganous sulfate	1.0	mg.
Vitamin B_{12}	2.0	mcg.	Iodine — from potassium iodide	0.15	mg.
Folic acid U.S.P.	2.0	mg.	Molybdenum — from sodium molybdate	0.2	mg.
Nicotinamide	100.0	mg.	Potassium — from potassium sulfate	5.0	mg.
Vitamin E (as mixed tocopherols natural)	10.0	mg.	Zinc — from zinc sulfate	1.2	mg.
Inositol	30.0	mg.	Magnesium — from magnesium sulfate	6.0	mg.
Choline — from choline bitartrate	30.0	mg.	Phosphorus — from dicalcium phosphate	127.4	mg.

No. 293—supplied in bottles of 100 and 1,000.

*Waife, S.O., M. Clin. North America 32:1709 (Nov.) 1948.

in Stress Conditions – in Obesity – in Chronic Disease

5567

Ayerst

AYERST LABORATORIES · NEW YORK, N. Y. · MONTREAL, CANADA

HELP

for the Bowel-conscious Patient

CHOLAN HMB

acts promptly to provide:

1 **Hydrocholeresis –**
abundant fluid bile

2 **Spasmolysis –**
safe and dependable
relaxation of biliary tree

3 **Sedation –**
for the psychosomatics

CHOLAN HMB–

Dehydrocholic acid
250 mg.

Homatropine methylbromide
2.5 mg.

Phenobarbital
8 mg.

Maltbie

MALTBIE LABORATORIES DIVISION • Wallace & Tiernan Inc. • Belleville 9, N. J.

After Hours

Photographs with brief descriptions of your hobby will be welcomed. A beautiful imported German apothecary jar will be sent to each contributor.

Up until the time in 1940 when my wife introduced me to that beautiful flower, the gladiolus, I thought the word applied only to that portion of the sternum projecting below the attachments of the costal cartilages! Since that time the raising of "glads" as they are commonly called, has gradually become my chief hobby.

I started with some of the old standbys, such as Blue Beauty and Gold Dust, and gradually expanded up to 45 varieties. It is difficult to visualize from the description in a catalogue just what a bloom will be like. In fact, it is amusing as well as confusing, to read the description of the same flower in different catalogues. Their names are rivaled in diversity only by those of the drug companies' new products!

Gladiola culture is a hobby one can enjoy all year around. In winter you start sending for catalogues, and poring over the lists of names, descriptions and prices. In spring you give careful consideration to the best spot to plant. Then the soil preparation and the actual planting which spreads over several weeks to give a long blooming season. Finally the summer morning comes when the first spike opens and you thrill to its rare beauty. You place it carefully in your wife's best vase, right in the picture window where the neighbors can't miss it. Of course, before long you have so many blooms you keep them all supplied with all they'll take! County Fair time usually catches you with a poor selection open, but you enter what you have. If you are lucky, as I was this year, you get a blue ribbon, and are properly modest, though you know all along you deserve it! Fall brings the first frost. Then through the lazy days you dig the bulbs and fix them for winter, ready to start the cycle over.

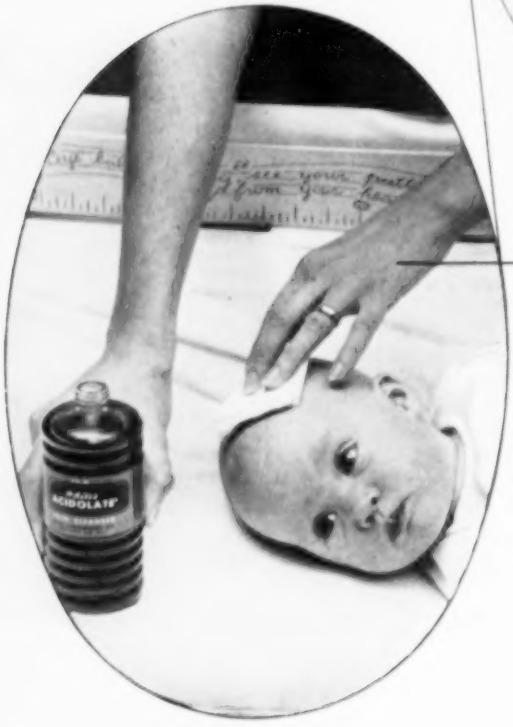
Eugene F. Pfile, M.D.
Longmont, Colorado

Dr. Pfile with his prize-winning "glads."

Designed FOR THE MOST DELICATE SKIN OF ALL...

DERMOLATE®

A remarkably mild, lathering skin detergent in cake form. It cleanses completely and is gentle for use on soap-irritable or acutely inflamed skin. Dermolate is unsurpassed for routine daily bathing of infants and children. . . . 4 oz. cakes . . .



ACIDOLATE®

A bland, non-lathering cleanser in *liquid form*, that removes fat-soluble and water-soluble skin soil with equal efficiency. Acidolate is especially useful in pediatrics to dissolve oils and ointments on the skin and hair or for the removal of scales, crusts, "cradle cap" and vernix caseosa. . . . bottles of 8 fl. oz. and 1 gal. . . .

WHITE LABORATORIES, INC., Kenilworth, N. J.

After
severe infectious disease,
fractures and other trauma,
prolonged antibiotic therapy,
serious vitamin depletion,
second and third degree burns,
surgery

hasten
convalescence
with

STRESSCAPS

Stress Formula Vitamins *Lederle*

Patients who suffer unusual physiologic stress need proper vitamin supplementation to hasten their convalescence. STRESSCAPS (based on the formula suggested by the National Research Council) provide the necessary vitamins in a *dry-filled* capsule for rapid and complete absorption. Average dose: in convalescence—1 capsule daily; in severe conditions—2 capsules daily.

Each capsule contains:	
Thiamine Mononitrate (B_1)	10 mg.
Riboflavin (B_2)	10 mg.
Niacinamide	100 mg.
Ascorbic Acid (C)	300 mg.
Pyridoxine HCl (B_6)	2 mg.
Vitamin B_{12}	4 mcgm.
Folic Acid	1.5 mg.
Calcium Pantothenate	20 mg.
Vitamin (K Menadione)	2 mg.

LEDERLE LABORATORIES DIVISION *American Cyanamid Company* PEARL RIVER, NEW YORK

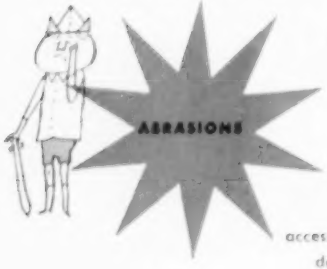
Lederle

nonsensitizing . . . rapid acting . . . topical anesthetic

XYLOCAINE® OINTMENT ASTRA

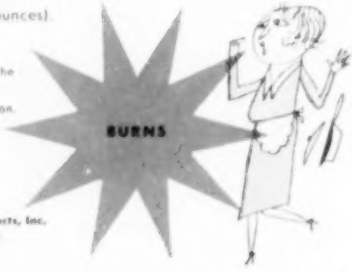
(Brand of lidocaine*)

a new form of the widely accepted Xylocaine Hydrochloride solution



- Xylocaine Ointment provides unusually rapid, and deeply penetrating anesthesia without the drawback of toxicity, sensitization or irritation. Xylocaine is unique in this respect.
- For use in the control of itching, burning and other dermatologic distress. May also be applied liberally on skin and accessible mucous membranes to prevent pain during examination or instrumentation.
- Available in a water soluble, nonstaining vehicle as 2.5% and 5% Xylocaine base in collapsible tubes or wide-mouth jars, each containing 35 grams (approx. 1.25 ounces).

Xylocaine Ointment is now made available at the request of many physicians, surgeons, and anesthetists who routinely use Xylocaine Solution.



ASTRA

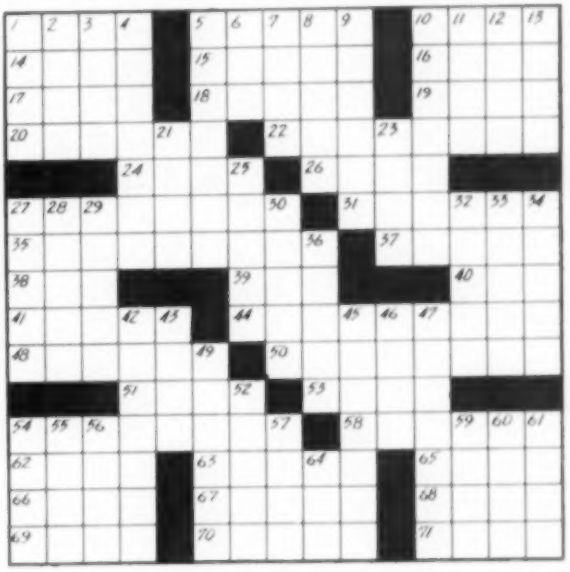
Astra Pharmaceutical Products, Inc.
Worcester 6, Massachusetts

*U. S. Patent No. 2,441,498

MEDICAL TEASERS

A Challenging Crossword Puzzle for the Physician

(Answer on page 42a)



Contributed by Joseph C. Hall, M.D.

ACROSS

1. German title of nobility
5. Billiard shot
10. Ceylonese monkey
14. National Foundation for Infantile Paralysis needs —— money
15. Synthetic fiber
16. Electric od (Abbr.)
17. Roster
18. Landed proprietor
19. Moist
20. Tooth (Comb. form)
22. Foreskin (Pl.)
24. Attractive by reason of daintiness
26. Aromatic hydrocarbon radical
27. What polio vaccine produces
31. Pertaining to pituitary site
35. Founder of the NFIP
37. ——tia, joy (Lat.)
38. Liver fluke disease
39. Annamese tribes
40. ——oplegia, one-extremity paralysis
41. Oklahoman Indian tribe
44. Showed that Eastern cotton rat can be given polio
48. Thomas H. ——, sharer of 1954 Nobel Prize for polio research
50. Cells directly attacked by polio
51. River (Tagalog)
53. Draw out and twist wool
54. —— to polio, not uncommon in summertime crowds
58. Pyrexia
62. Medicinal drinks made from herbs
63. ——— Globulin
65. ——ette, Gilbert and Sullivan operetta
66. Aoudad
67. ——ropia, normal refraction of the eye
68. ——para, Childless woman
69. ——erol, Muscle relaxant
70. Separate a tissue for microscopic examination
71. Search

DOWN

1. ——spasm, Rotatory spasm of the head
2. Crucifix
3. ——nomic, nervous system
4. Man in charge of evaluating polio vaccine trials
5. Russian foreign minister
6. Greek goddess of vengeance
7. Worsen
8. Blessing
9. Harvard virologist, sharer of 1954 Nobel Prize for Polio research
10. Nerve center involved in severest polio cases
11. Man's nickname
12. Bodian and Howard —— concluded that polio virus belonged to 3 types in respect to immunity
13. Malabar linear measure (Pl.)
21. Roller —— Technic, mass production method of growing polio virus
23. Denoting renal pelvis (Comb. form)
25. Dropsy
27. Caustic rod for insertion into tumor
28. Hanging device
29. Sum
30. Lost (obs.)
32. Source of succus limonis
33. Expiate
34. Marginal growths of liquid bacterial colony
36. "Medical ——", G P's indispensible monthly
42. Tumorous neuroglia disease
43. Mature elvers
45. Salt of sulfuric acid
46. —— Pelvis, Pelvis minor
47. Frederick C. ——, sharer of 1954 Nobel Prize for pilio research
49. Leptus autumnalis
52. Misery (Arch.)
54. ——Mamelonne, chronically inflamed gastric mucosa
55. ——stoma, Dry mouth
56. Hammon and Yale's —— showed polio to be as old as civilization
57. Novel by Jane Austin
59. Rake
60. That one (Fr.)
61. Man behind history's biggest "monkey business"
64. ——encephalon, midbrain

THE ORAL USE OF PECTIN N.F. AND PECTIN DERIVATIVES IN PHARMACEUTICAL SPECIALTIES

Pectin enhances the physiologic function of the digestive tract through its colloidal, chemical and antibacterial properties. The beneficial action is derived by increasing the bulk and fluid retention of the upper intestinal contents, giving them a smooth gelatinous consistency, and by lubricating the intestinal wall. Pectin promotes normal peristalsis without harsh, irritating mechanical influence.

Current investigational work indicates that the detoxication mechanism of pectin and its derivative, galacturonic acid, is also of value in reducing many toxic reactions caused by other therapeutic agents.

Exchange Brand Pectins and Derivatives are available to the medical profession in specialty products distributed by leading pharmaceutical companies.

Pectin N. F. #444
Pectin-Cellulose Complex #440
Polygalacturonic Acid #491
Galacturonic Acid #494
Calcium Pectinic Acid Amide #468
Sodium Polypectate #24

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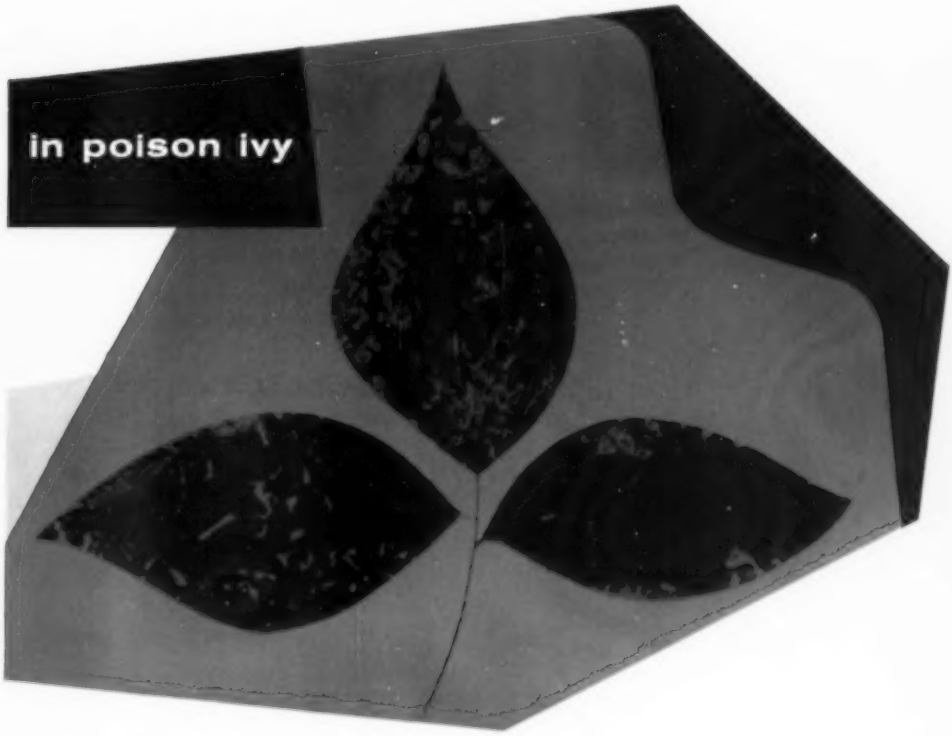
PRODUCTS DEPARTMENT

Exchange

PHARMACEUTICAL SALES • ONTARIO, CALIFORNIA



topical corticosteroid-antibiotic therapy

florinef-S

Squibb Fludrocortisone Acetate With Spectrocin (Squibb Neomycin-Gramicidin)

almost immediately relieves the intolerable itching, and reduces the hazard of spreading the eruption through scratching.

10 to 25 times more potent than hydrocortisone, Florinef-S usually clears inflammation and reduces eruption within 12 hours.

provides prophylactic and therapeutic action against secondary infection.

Florinef-S and Florinef are also effective in many cases of *poison oak*, *poison sumac* and *primrose poisoning*.

Supply: *Florinef-S Lotion*, 0.05 and 0.1 per cent, in 15 ml. plastic bottles.
Florinef-S Ointment, 0.1 per cent, in 5 gm. and 20 gm. tubes.

Florinef Lotion, 0.05, 0.1, and 0.2 per cent, in 15 ml. plastic bottles.
Florinef Ointment, 0.1 and 0.2 per cent, in 5 gm. and 20 gm. tubes.

SQUIBB

BLUE
AT
BREAKFAST?

BONADOXIN*

(BRAND OF MECLIZINE HCl-PYRIDOXINE HCl)

stops morning sickness

RESULTS
of
this
new
COMBINATION

In 100 patients with severe nausea and vomiting, Weinberg reports 88% good to excellent results.[1] In another series, BONADOXIN abolished vomiting in 40 of 41 gravida, eliminated nausea in 30 of the 41.[2]

Each BONADOXIN tablet contains:

MECLIZINE HCl	**25 mg.**
PYRIDOXINE HCl	**50 mg.**

Mild cases: One BONADOXIN tablet at bedtime.
Severe cases: One at bedtime and on arising.
In bottles of 25 and 100, prescription only.
Also indicated in post-radiation sickness, nausea following surgery, Ménière's syndrome.

ROERIG Rx

Chicago 11, Illinois

*TRADEMARK

1. Weinberg, Arthur and Werner, W. E. F.: Bonadoxin, a new effective oral therapy for hyperemesis gravidarum. Am. Pract. and Dig. of Treatment. In press. 2. Personal communication. 3. Berenson, F.: Bonadoxin: oral therapy for nausea and vomiting of pregnancy. In press.

LETTERS TO THE EDITOR

This department is offered as an Open Forum for the discussion of topical medical issues. All letters must be signed. However, to protect the identity of writers, who are invited to comment on controversial subjects, names will be omitted when requested.

Well Edited Journal

I received my first copy of MEDICAL TIMES recently and was very much pleased with the journal.

This journal combines the good features of many of our popular journals. It is well edited and contains material which is welcome to the General Practitioner.

N.W.L., M.D.
Hammond, Indiana

More on Prescription Pad Holders

My sincere thanks for the MEDICAL TIMES and the prescription pad holder. Your articles are concise and timely.

R.G.H., M.D.
Miami Beach, Florida

Thank you for your excellent magazine and wonderful gift. Pardon me for my belated thanks.

R.B., M.D.
Brooklyn, New York

IN CONCEPTION CONTROL

"...WHEN THEIR LIVES DEPEND UPON IT"

Recently, discussing the contraceptive efficacy of the "jelly-alone" method, Jackson predicted that in time it "will find its own level of usefulness, but it should not be handed out to highly fertile parous women, particularly when their lives depend upon it, in the mistaken belief that it will protect them as fully as one of the combined methods (cap or sheath plus spermicide)."[1]

"The added protection of a diaphragm..."

"Where avoidance of pregnancy is important... the added protection of a diaphragm should be prescribed,"[2] stresses Gamble. And Greenhill,[3] Novak,[4] Reich and Nechtow,[5] and the Council on Pharmacy and Chemistry of the A.M.A.[6] agree that the diaphragm-jelly method offers the most dependable conception control, with reliability of 95% to 98%.[2,4]

Indications for the jelly-alone method

Although "diaphragms can be fitted to almost all women,"[3] some women do not use them for anatomical, physiological, economic or psychological reasons: ■ Relaxed pelvic floor[5,7] ■ Extensive cystocele[3,5,7] ■ Extensive rectocele[3,5,7] ■ Intact hymen[3] ■ Short anterior vaginal wall[7] ■ Third degree retroversion of uterus[7] ■ Acute anteflexion of the uterus[7] ■ Complete prolapse[3] ■ Personal preference ■ Crowded living conditions ■ Inability to learn technic ■ No urgent need to avoid pregnancy[8,9] ■ Unwillingness to use the diaphragm ■ Fear of impairing future fertility ■ Low parity[1,8,9]

Selective safety

For such patients the physician may prescribe RAMSES VAGINAL JELLY* alone with confidence, as demonstrated in a study by Guttmacher and associates.[8] In 325 women observed who had used the jelly-alone (RAMSES VAGINAL JELLY) method from 3 months to 3 years, the total unplanned pregnancy rate was only 16.7 per 100 patient-years of exposure. Of these pregnancies, *over 45% were due admittedly to patient's negligence or failure to use method properly. Thus the actual pregnancy rate was 10.82 per 100 patient years of exposure.*[8]

All women in this study had one child or more. Significantly, those with more than one child had almost twice as many unplanned pregnancies as those with one child only. Guttmacher and associates conclude that the jelly-alone method *will be more effective in nonparous women and in women of low parity.* They believe that the patients' "intelligence, motivation, parity, and ready access to new supplies all affect success or failure."[8]

Prescribing for the individual

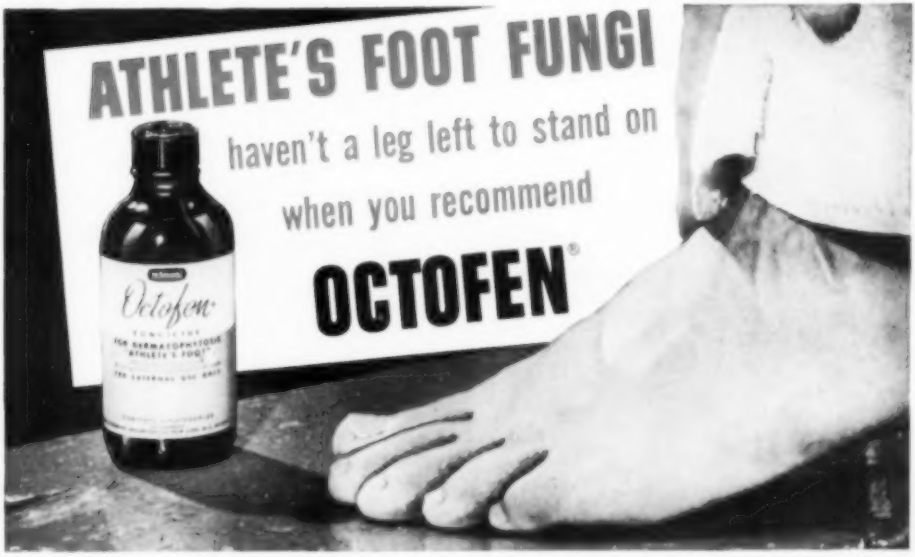
The physician may choose the method best for the patient. When high parity, normal anatomy, or need for maximum protection indicate the use of the diaphragm-and-jelly method, the RAMSES® "TUK-A-WAY"® kit is recommended. The RAMSES diaphragm is flexible and cushioned. It provides an optimum mechanical barrier with utmost comfort. In combination with RAMSES jelly, it offers an unsurpassed contraceptive technic. Where anatomical, psychological, or economic factors indicate the use of jelly-alone, RAMSES VAGINAL JELLY can be confidently prescribed. *Both products are accepted by the appropriate Councils of the American Medical Association.*

References: 1. Jackson, M. G.: Lancet 2:346 (Aug. 15) 1953. 2. Gamble, C. J.: Ann. New York Acad. Sc. 54:840 (May 2) 1952. 3. Greenhill, J. P.: Office Gynecology, ed. 5, Chicago, The Year Book Publishers, Inc., 1948. 4. Novak, E.: Textbook of Gynecology, ed. 3, Baltimore, The Williams and Wilkins Co., 1948. 5. Reich, W. J., and Nechtow, M. J.: Practical Gynecology, Philadelphia, J. B. Lippincott Co., 1950. 6. Council on Pharmacy and Chemistry of the A.M.A.: New and Nonofficial Remedies for 1954, Philadelphia, J. B. Lippincott Co., 1954. 7. Tietze, C.; Lehfeldt, H., and Liebmann, H. G.: Am. J. Obst. & Gynec. 66:904, (Oct.) 1953. 8. Finkelstein, R.; Guttmacher, A., and Goldberg, B.: Am. J. Obst. & Gynec. 63:663 (March) 1952. 9. Barnes, J.: Lancet 2:401 (Aug. 22) 1953.

ATHLETE'S FOOT FUNGI

haven't a leg left to stand on when you recommend

OCTOFEN®



3 out of 4 hot-weather vacationists get athlete's foot! But OCTOFEN LIQUID lessens their misery fast as well as your treatment time!

OCTOFEN LIQUID

With OCTOFEN LIQUID quickly applied to every itching, peeling, cracked skin surface, athlete's foot fungi haven't a leg left to stand on. Repeated laboratory tests prove OCTOFEN LIQUID kills T. mentagrophytes, the most common culprit, in 2-minutes flat in laboratory tests. That is why so many cases clear up with OCTOFEN in approximately a week's time. Furthermore, OCTOFEN LIQUID's active agent, 8-hydroxyquinoline benzoate, is potent but gentle. With it there's no overtreatment – no skin destruction! OCTOFEN LIQUID enjoys wide patient acceptance for its nonirritating as well as its greaseless and stainless qualities.

OCTOFEN POWDER

As a *superb preventive measure*... and *between liquid applications*... many specialists now rely on OCTOFEN POWDER. Here, too, 8-hydroxyquinoline benzoate assures ultra-potent fungicidal action in a satin-smooth, noncaking form. Helps keep feet extra-dry thanks to extra-thirsty silica gel. So soothing to *all* tired, tender feet, and splendid protection against foot odors!

McKESSON & ROBBINS
INCORPORATED
Bridgeport 9, Conn.

McKesson & Robbins, Inc., Dept. MT
Bridgeport 9, Conn.

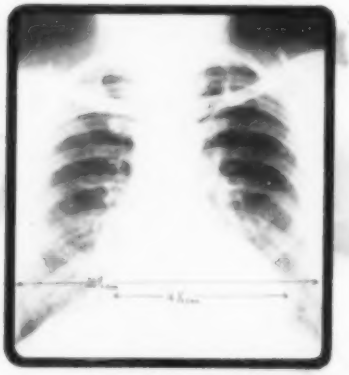
Kindly send me free samples of your OCTOFEN LIQUID and OCTOFEN POWDER.

Name _____ M.D.

Address _____

City _____ Zone _____ State _____

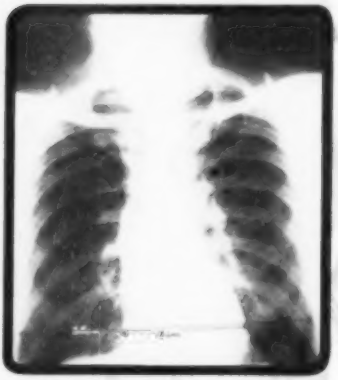
BEFORE



(X-ray, enlarged heart)

ESSENTIAL
HYPERTENSION

AFTER



(X-ray, same heart after treatment)

The 2 X-rays above show the enlarged heart of a hypertensive patient before and after treatment with Unitensen Tablets. Unitensen is a true hypotensive drug that dependably lowers blood pressure—without dangerous side actions—in the majority of hypertensive patients whose blood pressure **must** be lowered. Thus, Unitensen can arrest the progress of vascular disease and, in time, actually permit regression of organic changes.

UNITENSEN® TANNATE TABLETS
brand of cryptenamine

Each tablet contains cryptenamine (as tannate salts), 2 mg.

bottles of 50, 100, 500 and 1000

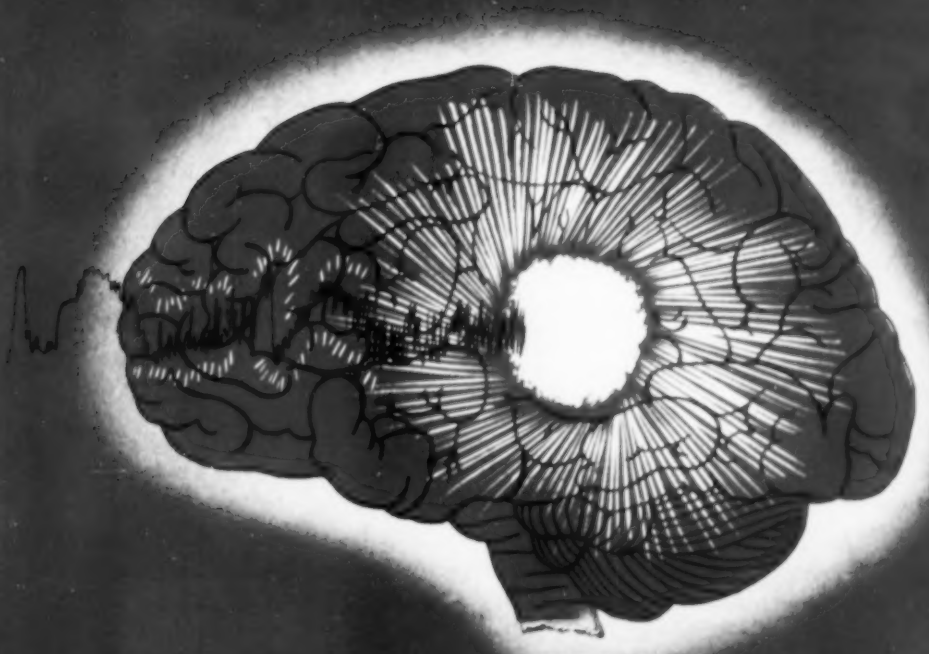
Prolonged treatment is inexpensive—costs ½ to ¼ **less** than other potent hypotensive drugs.

IRWIN, NEISLER & COMPANY • DECATUR, ILLINOIS • TORONTO 1, ONTARIO

Egad!, Doctor, you were right!

"MYSOLINE"

may forestall detonation



In epilepsy

"MYSOLINE" HAS PROVED CLINICALLY VALUABLE

NOTABLE RESULTS REPORTED WITH "MYSOLINE" IN 63 PER CENT OF PATIENTS REFRACTORY TO OTHER ANTICONVULSANTS.

The Doyle and Livingston report* covers 100 patients, mostly children, the majority ranging in age from 2 to 14 years. In 64 the epilepsy was of idiopathic origin, and in 36 it was due to organic causes. Other anticonvulsants in maximum dosages had proved ineffective in 81 of these patients for at least one year previously.

In 42 of the 81 patients who had been receiving other anticonvulsants, transition to "Mysoline" alone was completed in about 2 months; the other 39 were continued on combination therapy throughout the observation period (from 3 months to 1 year). The daily dose of "Mysoline" ranged from 0.375 Gm. to 1.5 Gm., depending on the age of the patient.

Results of therapy: "Mysoline" therapy benefited 63 per cent of the 100 patients; seizures were entirely controlled in 30, markedly reduced in 20, and moderately reduced in 13. Grand mal attacks were completely controlled in 30 of 51 patients with this type of seizure. The response in patients with petit mal, minor, or psychomotor seizures was less favorable.

Side effects: Routine blood counts and urinalyses were made on every patient and showed no abnormality at any time. No serious side reactions were observed. Drowsiness occurred in 19 per cent of the patients, sometimes with minor disturbances of equilibrium, but these side effects generally disappeared spontaneously within a few weeks.

*Doyle, P. J., and Livingston, S.: J. Pediat. 43:413 (Oct.) 1953.

Ayerst Laboratories • New York, N. Y. • Montreal, Canada

Ayerst Laboratories make "Mysoline" available in the United States by arrangement with Imperial Chemical (Pharmaceuticals) Limited.

5864

"MYSOLINE" HAS PROVED CLINICALLY VALUABLE IN PREVENTING THE "DETONATION"[1] WHICH LEADS TO GRAND MAL AND PSYCHOMOTOR SEIZURES.

"Mysoline" constitutes "a valuable addition to the medical treatment of epilepsy. It is most convincingly effective in grand mal, and present evidence suggests it may prove more beneficial than most drugs used for the psychomotor group . . ."

Editorial: Brit. M. J. 1:1028 (May 1) 1954.

"Mysoline" appears to be a "relatively nontoxic drug and it did not produce any known serious side effects in a group of 48 patients." When drowsiness, dizziness, and slight ataxia were noted "these complaints ceased after reduction of the dosage. Consequently, after the proper dose was established, 'Mysoline' was well tolerated without side effects."

Pence, L. M.: Texas State J. Med. 50:290 (May) 1954.

COMPOSITE RESULTS OF 20 CLINICAL STUDIES

EPILEPTIC PATIENTS HAD FAILED TO RESPOND SUCCESSFULLY TO OTHER ANTICONVULSANTS

"Mysoline" was added to current medication which, in some cases, was eventually replaced by "Mysoline" alone.

Type of Seizure	No. of Patients	Completely Controlled	50-90% Improved	Less than 50%
Grand Mal	613	175 (28.5%)	253 (41.2%)	185 (30.3%)
Psychomotor	130	10 (7.7%)	65 (50%)	55 (42.3%)

EPILEPTIC PATIENTS HAD RECEIVED NO OTHER MEDICATION

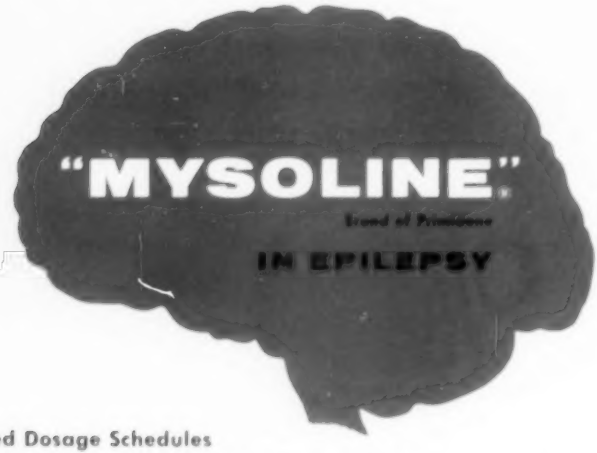
"Mysoline" alone was employed.

Type of Seizure	No. of Patients	Completely Controlled	50-90% Improved	Less than 50%
Grand Mal	214	172 (80%)	15 (7%)	27 (13%)
Psychomotor	29	19 (65%)		10 (35%)

[1]"Seizure discharge, the physiological basis of clinical epilepsy, is a process by which 'a portion of the cerebral nerve network (is converted) from a submaximally active asynchronous mosaic with an internal self-regulating inhibitory system to a maximally active hyperdischarging and hypersynchronized functional unit capable of detonating other regions of the brain with which it has connection'."

Kaufman, I. C., and Isenberg, S.: M. Clin. North America 36:1381 (Sept.) 1952.

SEE NEXT PAGE FOR COMPLETE DOSAGE SCHEDULES



Suggested Dosage Schedules

Adults and children over 8 years: *In patients receiving no other anticonvulsants:* "Mysoline" therapy is started with 0.25 Gm. daily, and dosage is gradually increased at weekly intervals, until maximum therapeutic effect is achieved.

Order of Dosage Increase for Adults and Children Over 8 Years

1st week	2nd week	3rd week	4th week
0.25 Gm. (1 tablet) daily, at bedtime	0.5 Gm. (2 tablets) daily, 1 on arising, 1 at bedtime	0.75 Gm. (3 tablets) daily, in 3 divided doses	1 Gm. (4 tablets) daily, in 4 divided doses

When dosage is increased beyond 1 Gm., the daily intake is administered in four divided doses, and increments of 0.25 Gm. are added at weekly intervals as indicated above. Children 8 years and older are usually able to tolerate the same dosage as adults. ("Mysoline" is not recommended for use in dosages over 2 Gm. daily.)

In patients already receiving other anticonvulsants: "Mysoline," 0.25 Gm., is given daily and dosage is gradually increased, while the dosage of the other drug(s) is gradually decreased.

Children up to 8 years of age: 0.125 Gm. is administered on the same basis of therapy as suggested for adults. (In many cases control has been achieved with 0.375 Gm. to 0.75 Gm. daily.)

Supplied: No. 3430 — 0.25 Gm. tablets (scored). Bottles of 100 and 1,000.

A REPRINT OF THE DOYLE AND LIVINGSTON REPORT ABSTRACTED HEREIN MAY BE OBTAINED ON REQUEST. DESCRIPTIVE LITERATURE ON "MYSOLINE" IS ALSO AVAILABLE.

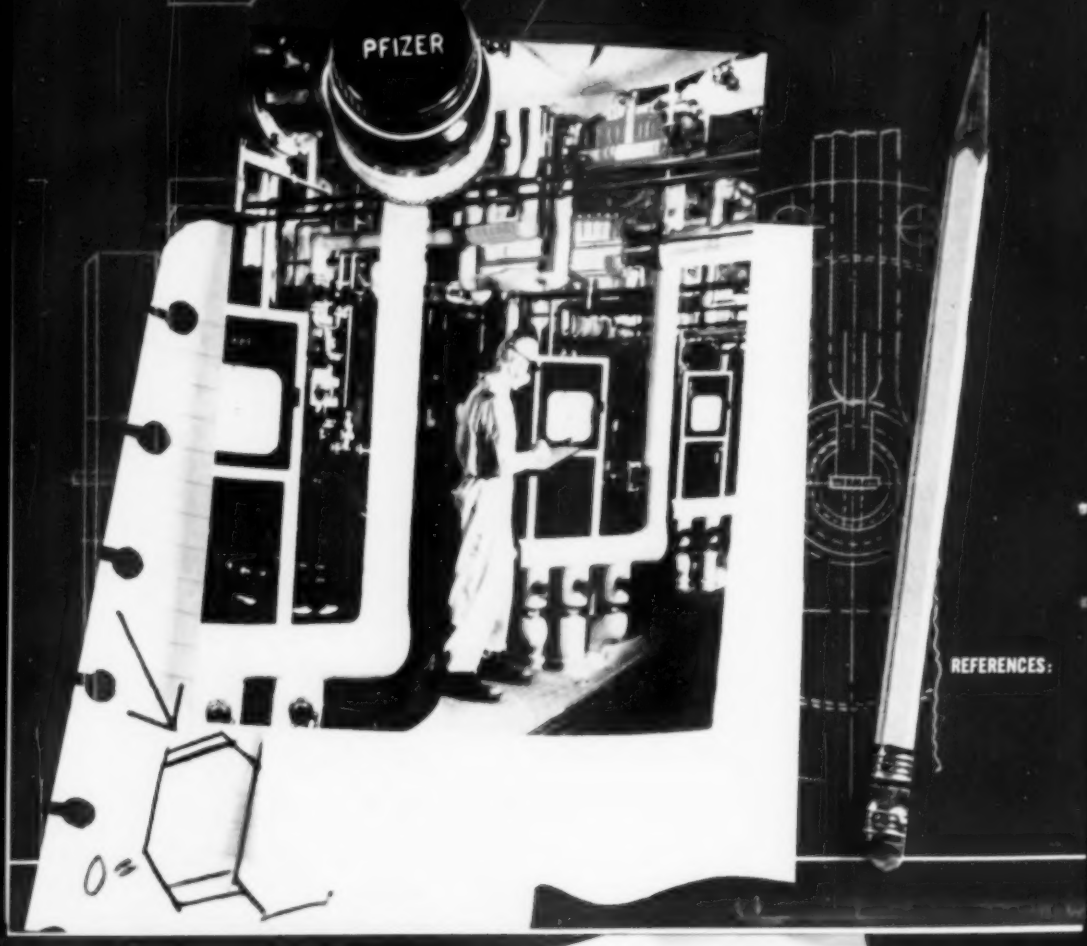
announcing the

NEWEST

highly potent

Anti-rheumatic

Ste



REFERENCES:

rane*

Intensified potency[1-6]

3 to 5 times more potent than cortisone or hydrocortisone

notable absence of major side effects[1-3, 6]

virtually without edema caused by sodium and water retention—avoids excessive potassium loss—other side reactions usually minor and frequently transient

rapid improvement in rheumatoid arthritis[1]

prompt relief of subjective and objective symptoms—Sterane has also shown excellent clinical response in bronchial asthma and inflammatory skin conditions

anti-inflammatory anti-rheumatic anti-allergic

Supplied as scored 5 mg. oral tablets, shaped like the familiar Pfizer oval. Bottles of 20 and 100.

1. Bunim, J. J., et al.: J.A.M.A. 157:311, 1955. 2. Boland, E. W.: California Med. 82:65, 1955. 3. Norred, S. R.: Am. Prof. Pharm. 21:241, 1955. 4. Waine, H.: Bull. Rheumat. Dis. 5:81, 1955. 5. Herzog, H. L., et al.: Science 121:176, 1955. 6. Spies, T. D.: GP, in press.

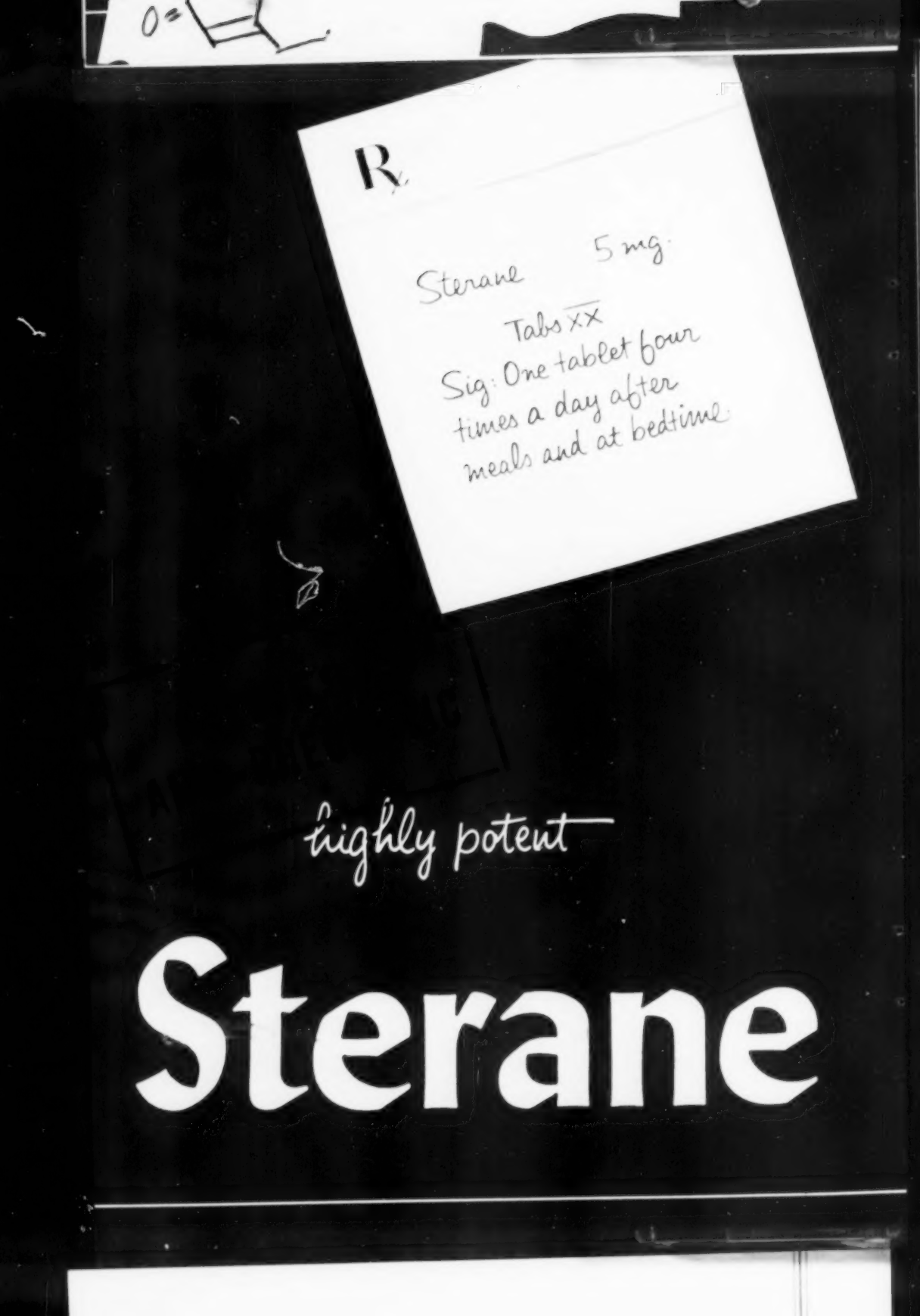
PFIZER LABORATORIES

Division, Chas. Pfizer & Co., Inc.

Brooklyn 6, New York

STERANE | **TABLETS**

*Trademark for Pfizer's brand of prednisolone


℞
Sterane 5 mg.
Tabs XX
Sig: One tablet four times a day after meals and at bedtime
highly potent
Sterane

you can relax your patient

and enjoy peace of mind yourself

when you prescribe Noludar 'Roche' as a

sedative (or in larger dosage, as a hypnotic).

There is little danger of habituation

or other side effects, because Noludar

is not a barbiturate. Available

in 50-mg and 200-mg tablets,

and in liquid form, 50 mg

per teaspoonful.

Sheep bring sleep to a few ...

but relaxation brings sleep to almost everyone. Noludar relaxes your patient and usually induces sleep within one half to one hour, lasting 6 to 7 hours. Clinical studies on more than 3,000 patients have demonstrated the usefulness of Noludar for the relief of nervous insomnia and daytime tension. Noludar 'Roche' is not a barbiturate. Noludar'"

-- brand of methyprylon (3,3-diethyl-5-methyl-2,4-piperidinedione)

Hoffmann - La Roche Inc

Nutley · N.J.

new

Multivitamins for children 2 to 10

UNIQUE SOFTAB® FORM

melts in the mouth

PLEASANT TASTING

Mulvidren

(STUART)

ONE TABLET CONTAINS:

A	5000 USP Units
D	1000 USP Units
C	60 mg.
B_1	2 mg.
B_2	2 mg.
B_6	1 mg.
B_{12}	5 mcg.
Calcium Pantothenate	3 mg.
Niacinamide	10 mg.

DOSE: 1 TABLET DAILY

Supplied: bottles of 50 and 100 tablets

a circulatory
and respiratory
stimulant . . .

Coramine®

ORAL SOLUTION (nikethamide CIBA)

Clinical experience over many years has shown that Coramine Oral Solution is useful as a circulatory and respiratory stimulant for asthenic or elderly patients. It has been reported that Coramine Oral Solution may be beneficial in patients with coronary occlusion, in whom it appears to improve collateral circulation in the infarcted area and to stimulate the respiratory center.[1] Being noncumulative and having low toxicity, Coramine Oral Solution is suitable for prolonged treatment without danger of habituation developing. *Dosage:* ½ to 1 teaspoonful (2 to 4 ml.) 2 or 3 times a day—diluted, if desired, with water.

SUPPLIED: Coramine Oral Solution, a 25% aqueous solution of nikethamide; bottles of 1 and 3 fluid oz. and 1 pint. Also for intravenous or intramuscular use: Ampuls, 1.5 ml. and 5 ml.; multiple-dose vials, 20 ml.

1. Carey, L. S.: Delaware M. J. 21:229 (Oct.) 1949.

CIBA
SUMMIT, N. J.

MODERN MEDICINALS

These brief resumes of essential information on the newer medicinals, which are not yet listed in the various reference books, can be pasted on file cards and a record kept. This file can be kept by the physician for ready reference.

Aloxed, Chicago Pharmacal Company, Chicago 40, Illinois. Each fluid ounce contains: aluminum hydroxide, 4%; homatropine methylbromide, 5 mg. For the relief of pain and spasm in gastro-intestinal conditions. **Dose:** 1 or 2 teaspoonfuls mixed with 3 parts of water every 2 to 4 hours. **Sup:** 6 ounces, pint, and gallon bottles.

Armyl Plus F, Armour Laboratories, Kankakee, Illinois. Indicated in treatment of rheumatic conditions. Intended for those conditions which are too severe for treatment with salicylates alone, but not severe enough to justify the use of ACTH. **Dose:** As determined by physician. **Sup:** In bottles of 50 capsulettes.

Biomydrin-F, Nepera Chemical Co., Inc., Yonkers, New York. Contains the bactericidal, antiallergic and decongestant components of Biomydrin with the addition of hydrocortisone. Thonzonium bromide in the Biomydrin-F formula enhances the effectiveness of hydrocortisone by providing a rapidly penetrating, spreading, mucolytic action to the site of inflammation. Biomydrin-F is indicated for relieving nasal inflammation, congestion and discomfort in the allergic patient, is of significant benefit in allergy, allergic rhinitis, hayfever, pollinosis, sinusitis, and nasopharyngitis. **Dose:** As determined by physician. **Sup:** In half ounce "squeeze-bottle" atomizers.

Ceniron Plus, Central Pharmacal Company, Seymour, Indiana. New hematinic providing vitamin B_{12}, intrinsic factor, and folic acid, in addition to the original Ceniron formula. Indicated for macrocytic anemias and other anemias where more than iron deficiency may be involved. **Dose:** As determined by physician. **Sup:** In bottles of 100, 500, and 1,000 tablets.

Cherrin Granules, B. F. Ascher & Co., Inc., Kansas City, Missouri. A multivitamin supplement in granule form, outstanding for taste, stability, and solubility. In dry granule form, the stability of Cherrin can be depended upon over considerable periods. At the time of preparation of the solution, the granules dissolve readily, with just a stir or two, in any beverage. One teaspoonful of Cherrin a day provides for children more than the minimum daily requirement of essential vitamins and for adults at least the minimum daily requirement of most natural vitamins. **Dose:** As determined by physician — one teaspoonful is dissolved in one-half glass of liquid: water, fruit juice, milk; or it may be sprinkled over ice cream or other semi-solid foods. **Sup:** In 4 oz. and 10 oz. bottles.

Chlorostrep, Parke, Davis & Company, Detroit 32, Michigan. A combination of 2 antibiotics, Chloromycetin and

—Continued on page 60a

IN SICKNESS AND IN HEALTH

An electrocardiograph, such as a Viso-Cardiette, plays a *double* diagnostic role in the investigation of cardiac conditions.

When heart disease is present, the contribution of a 'cardiogram to the clinical picture is of indisputable value.

But, often overlooked is its importance in the patient *without* heart disease. Becoming more and more a part of the general examination, or check up, the electrocardiogram places in the physician's files information concerning the healthy patient that can well be of future value. Not only does it provide a norm or control with which to watch or study any progressive pathological changes, should they occur, but, when heart disease strikes, it is on hand to compare with the new record for information which would not have been otherwise available.

When you make your investment in better cardiac diagnosis by purchasing an electrocardiograph, be sure to consider the extra dividends that a Sanborn Viso-Cardiette will pay in accuracy, simplicity, and dependably continuous service.

Write for descriptive literature and information about a unique, no obligation, 15-day clinical test plan.

SANBORN COMPANY

CAMBRIDGE 39, MASSACHUSETTS

Upjohn

Gradual and sustained lowering of blood pressure:

Reserpoid

(Pure crystalline alkaloid)

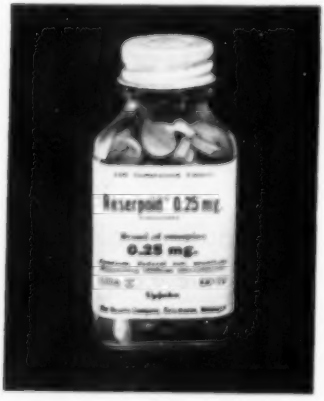
Each tablet contains:

Reserpine ..... 0.1 mg.
or 0.25 mg.
or 1.0 mg.

Supplied:

Scored tablets
0.1 and 0.25 mg. in bottles of 100 and 500
1.0 mg. in bottles of 100

The Upjohn Company, Kalamazoo, Michigan



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dihydrostreptomycin, for enhanced intestinal antibiotic effects. For treatment of susceptible enteritic infections; mixed infections encountered in bowel surgery; and anorectal tuberculosis. Also used pre- and postoperatively in intestinal surgery to reduce incidence of infection and shorten healing time. **Dose:** As determined by physician. **Sup:** In bottles of 12 Kapseals, each containing 125 mg. of Chloromycetin and 125 mg. of dihydrostreptomycin.

Depo-ACTH, The Upjohn Company, Kalamazoo 99, Michigan. Each cc. contains: adrenocorticotropic activity equivalent to 40 U.S.P. Units . . . gelatin, 160 mg. Preserved with phenol 0.5%. For intramuscular or for subcutaneous injection. **Dose:** As determined by physician. **Sup:** In 5 cc. vials.

Dexazyme, Gray Pharmaceutical Co., Inc., Newton 58, Massachusetts. Contains 3 excellent mood-elevating elements, in addition to B & C vitamins for simultaneous metabolic support of the depressed patient. Indicated as a preferred medication in the treatment of neurotic depression, reactive depression, depression-induced hypochondriasis, depression of the aged, postpartum depression, climacteric depression, postoperative and convalescent depressions, and depressions of the chronically ill. **Dose:** Recommended dose is 1 (or 2) tablets, t.i.d., at 8, 12, and 3 o'clock. **Sup:** In bottles of 60.

—Continued on page 64a

invitation to asthma?

not necessarily . . .

Tedral, taken at the first sign of attack, often forestalls severe symptoms.

relief in minutes . . . Tedral brings symptomatic relief in a matter of minutes. Breathing becomes easier as Tedral relaxes smooth muscle, reduces tissue edema, provides mild sedation.

for 4 full hours . . . Tedral maintains more normal respiration for a sustained period—not just a momentary pause in the attack.

Tedral provides:

Theophylline	2 gr.
Ephedrine HCl	⅛ gr.
Phenobarbital	⅛ gr.

in boxes of 24, 120 and 1000 tablets

Tedral®

WARNER-CHILCOTT

MILIBIS®

VAGINAL SUPPOSITORIES . . . A recent clinical study demonstrated Milibis Vaginal Suppositories to be effective treatment in 482 of 510 patients with trichomonal, monilial or mixed bacterial (non-gonococcus) vaginitis accompanied by leukorrheal discharge.[1]

Within 10 to 30 days following institution of a Milibis regimen, symptomatic relief was noted, as evidenced by disappearance of discharge and restoration of normal vaginal flora.

THERAPEUTIC REGIMEN WITH MILIBIS VAGINAL SUPPOSITORIES

"Simple . . . no esthetic discomfort to the patient . . . rare and inconsequential side effects." (Shanaphy)[1]

A Milibis suppository should be inserted in the vagina on alternate nights for a series of from 5 to 10 administrations. Acid douches (1 tablespoonful of vinegar and 2 teaspoonfuls of pHisoHex* in each quart of warm water) may be used in conjunction with Milibis therapy. Reich and his associates[2] recommend acid douches followed by insertion of a Milibis suppository nightly for 5 consecutive administrations, and thereafter office treatment twice weekly throughout the month, including the menstrual period.

In particularly refractory cases, the course of treatment may be expanded, or dosage increased to 1 suppository twice daily for two weeks.

In all types of vaginitis, the patient should be examined after each menstrual period for several successive months, even when the infection has disappeared.

MILIBIS Vaginal Suppositories are supplied in boxes of 10, each suppository containing 0.25 Gm. Milibis in a gelatin-glycerine base.

1. Shanaphy, J. F.: *New York Jour. Med.*, in press.
2. Reich, W. J.; Rubenstein, M. W., and Reich, J. B.: *Maryland Med. Jour.*, 2:241, May, 1953.

*pHisoHex®—an antiseptic, emollient, soapless cleanser—should be mixed with ¼ cup of hot water before adding to douche solution.

WINTHROP Winthrop-Stearns INC. New York 18, N. Y.—Windsor, Ont.

Terra-Cortril

brand of oxytetracycline and hydrocortisone

topical ointment

when the dermatologic picture is due to

double exposure

Terra-Cortril Topical Ointment rapidly clears both underlying inflammation and superimposed infection, through the combined actions of CORTRIL®—most potent anti-inflammatory adrenocortical steroid;[1] and TERRAMYCIN®—"perhaps the most effective antibiotic in pyogenic skin diseases."[2]

SUPPLIED: In 1/2-oz. tubes containing 3% TERRAMYCIN (oxytetracycline hydrochloride) and 1% CORTRIL (hydrocortisone, free alcohol) in a specially formulated, easily applied ointment base. ALSO AVAILABLE: CORTRIL Topical Ointment and CORTRIL Tablets.

1. Rukes, J. M., et al.: Metabolism 3:481, 1954.
2. Peterkin, G. A. G.: Brit. M. J. 1:522, 1954.

PFIZER LABORATORIES *Pfizer* Division, Chas. Pfizer & Co., Inc. Brooklyn 6, New York

—Continued from page 60a

Falgos Tablets, American Ferment Co., Inc., New York 18, New York. A new buffered analgesic compound tablet. Indicated for relief of pain in headache, neuralgia, neuritis, muscular aches, the common cold, and following dental procedures and extractions. Also effective in treating minor pains of rheumatism and arthritis. **Dose:** As determined by physician. **Sup:** In bottles of 15 and 40 tablets.

Glytheonate with Phenobarbital and Resperpine, The E. L. Patch Company, Stoneham 80, Massachusetts. Each white, uncoated tablet contains phenobarbital 11 mg., theophylline-sodium glycinate 325 mg., reserpine 0.1 mg., and dihydroxy aluminum aminoacetate 32.5 mg. A tranquilizing vasodilator indicated in the treatment of mild degrees of hypertension and as an adjunct in the treatment of angina pectoris, arteriosclerotic heart disease, congestive heart failure and as a myocardial stimulant. **Dose:** One tablet 3 times a day. **Sup:** Bottles of 100 (prescription only).

Levsin Sulfate Tablets 0.25 Mgm., Kremers-Urban Company, Milwaukee 1, Wisconsin. Each white scored tablet contains 0.25 Mgm. of l-hyoscyamine sulfate, the most potent anticholinergic agent now available for decreasing gastric secretory activity and reduction of gastrointestinal motility. **Dose:** Usual dose is 1 tablet every 4 hours. **Sup:** In bottles of 100 tablets.

Nebs, The Norwich Pharmacal Company, Norwich, New York. Acetyl-P-

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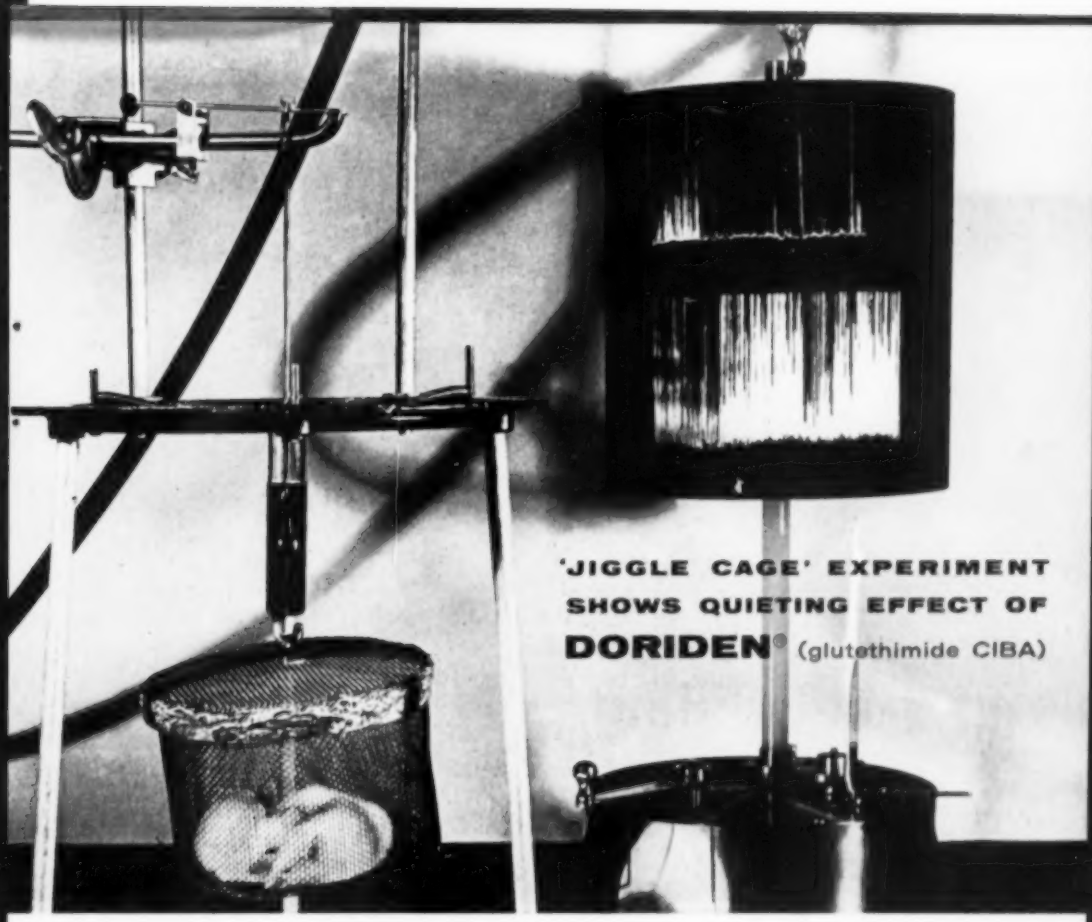
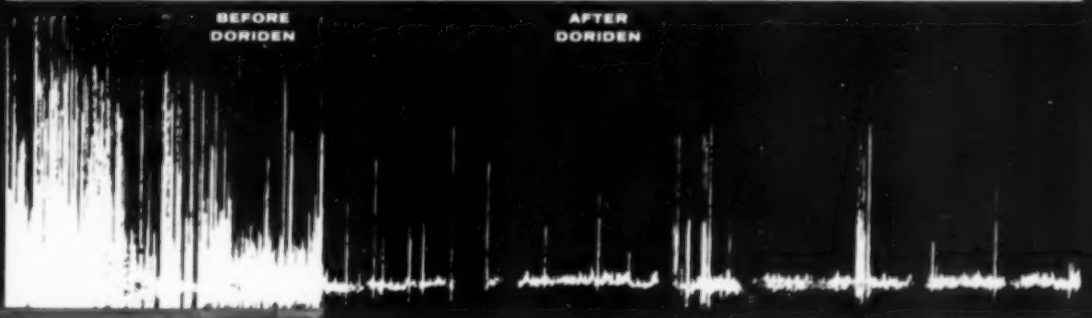


That **DORIDEN** — a totally new nonbarbiturate hypnotic and sedative — is effective as a quieting agent is demonstrated by this pneumatic movement recorder (jiggle cage), which measures the activity of laboratory animals. Note the marked change in the activity of mice after the administration of DORIDEN. Further evidence of the sedative and hypnotic effectiveness of DORIDEN is provided by numerous clinical studies. DORIDEN acts in 15 to 30 minutes and affords 4 to 8 hours of sound refreshing sleep. Present clinical evidence indicates it is not habit forming.

Tablets (white, scored), 0.25 and 0.5 Gm.

C I B A SUMMIT, N. J.



IN URINARY TRACT INFECTIONS

RELIEF

STARTS IN A MATTER OF MINUTES WITH

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SWIFTLY **combats the two primary causes of pain, burning, urgency, dysuria, frequency in genito-urinary infections.**

URISED's dual-powered formula exerts direct and steadfast control on pain-producing factors.

In a matter of minutes, through the parasympatholytic action of atropine, hyoscyamine and gelsemium, painful smooth muscle spasm is usually relieved and relaxed—directed toward a restored normal tone. In two or three days, distress may subside completely.

With equal rapidity, URISED's antibacterial agents — methenamine, salol, methylene blue and benzoic acid—traverse the entire urinary tract to hold bacterial growth at a minimum, reduce bacterial and pus-cell content, encourage healing of mucosal surfaces.

Prescribe URISED with confidence for prompt, effective pain relief, and for more dependable control of pyelitis, cystitis and urethritis. It is virtually non-toxic.

Overcomes Muscle Spasm

Prompt Antisepsis

Samples, literature, available on request.

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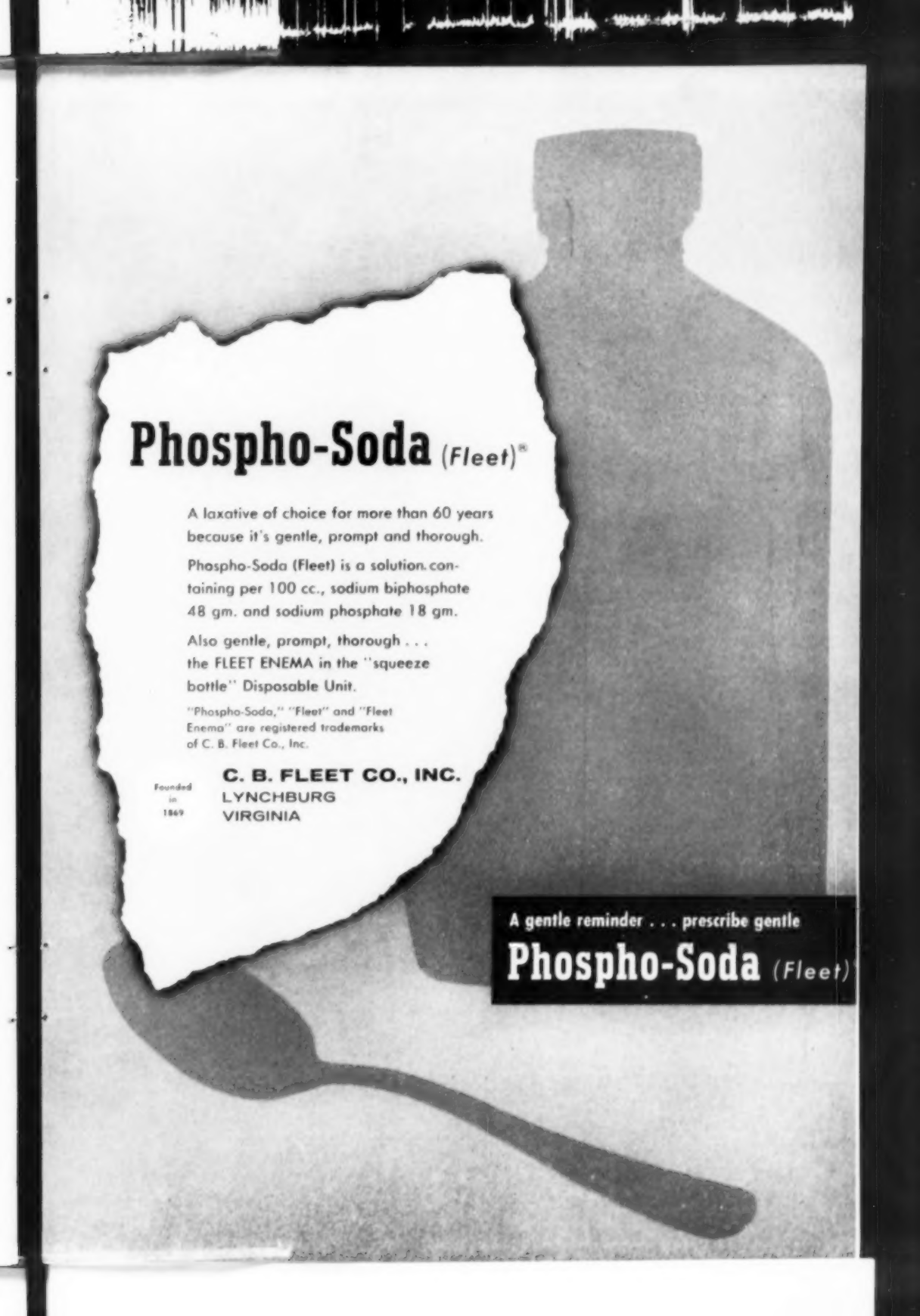
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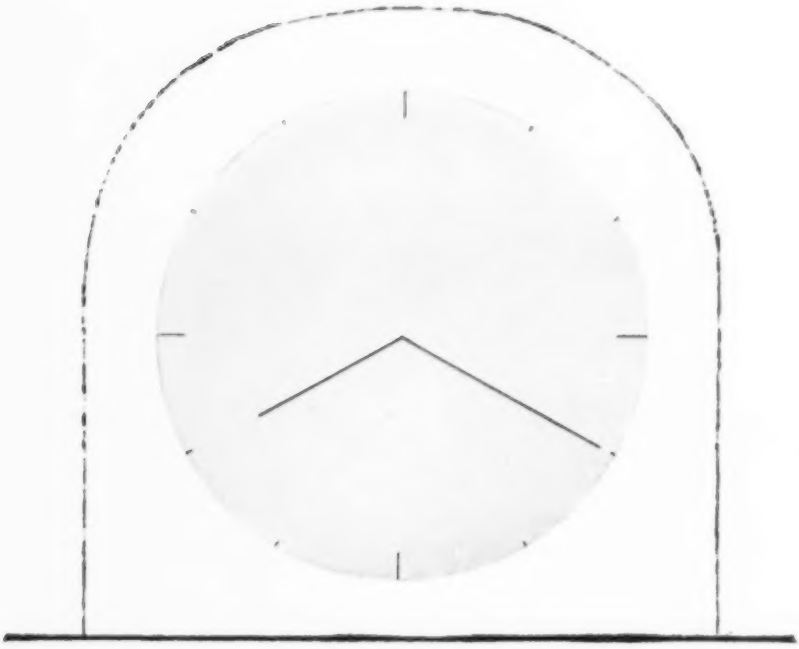

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Green writes: "Last year I obtained for investigational use, the antihistamine chlorprophenpyridamine maleate, so prepared . . . that its resultant therapeutic effect was designed to last approximately twelve hours following the administration of a single oral dose."

After giving this preparation ("Teldrin" *Spansule* capsules) to 357 allergic patients, Green reported:

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Green, M.A.: Ann. Allergy *12*:273

Teldrin*

chlorprophenpyridamine maleate

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brand of sustained release capsules

Antihistamine

In 2 dosage strengths:
8 mg. (1 dot on capsule) &
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One "Teldrin" *Spansule* capsule q12h provides 24-hour uninterrupted, sustained antihistamine protection from a wide range of allergic manifestations.

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for all **3** *types of Vaginitis*

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"95.5% of patients were asymptomatic and no organisms were seen after one week and remained so for the three months of observation."*

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"Twelve patients (of 15) became asymptomatic and no organisms were seen after one week of treatment. Eleven remained so for the six weeks of observation."*

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Highly effective dependent on primary source. "23 cases of cervical erosion were treated. 13 of them were apparently cured."*

*Germond, H. C., and Gallagher, Robt.: Obst. & Gyn. 2:522 (Nov.) 1953

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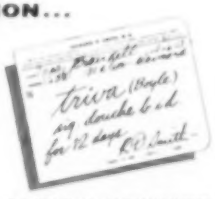
...see Physicians' Desk Reference 1955, page 427. Full treatment package and literature on request.



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1. Balfour, D. C., Jr.: Am. J. Gastroenterol. 22:181, 1954. 2. Burke, J. O., et al.: Internat. Rec. Med. & Gen. Practice Clin. 167:687, 1954. 3. Sternberg, S. D., and Greenblatt, I. J.: Ann. Allergy 9:190, 1951.

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—Continued from page 64a

Aminophenol tablets for relief of simple headaches, minor neuralgia, muscular aches and minor discomforts of the menstrual period. Containing no aspirin, Nebs give fast, prolonged action, and avoid gastric upset. **Dose:** As determined by physician. **Sup:** In bottles of 30 tablets each.

Neo-Semhyten Capsules, S. E. Massengil Company, Bristol, Tennessee. Each tablet contains: Reserpine 1 mg., mannitol hexanitrate 30 mg., theophylline 1 Gm., rutin 10 mg., ascorbic acid 15 mg. Indicated in the treatment of essential hypertension and as a prophylactic measure in combatting severe and malignant hypertension. **Dose:** Average dose is 1 capsule 4 times daily, after meals and at bedtime; larger doses at the discretion of the physician. **Sup:** In bottles of 100, 500, and 1,000 capsules.

Pantho-F Cream, U. S. Vitamin Corporation, New York 17, New York. One percent hydrocortisone in a stainless, white, stable, water-miscible, cosmetically pleasant cream containing 2% pantothenylol (Panthoderm Cream). Allays inflammation; relieves pain, itch and swelling; checks oozing and edema; reduces crusting and scaling; promotes rapid granulation and healing in: eczemas (infantile, housewives', etc.), dermatitis (atopic, contact, eczematoid), neurodermatitis, pruritus ani et vulvae, lichen chronicus simplex, in all skin conditions requiring anti-inflammatory, antipruritic, healing therapy. Non-irritant, rarely sensitizes. Easily applied and removed without disturbing epithelization. **Dose:** Clean affected area, then gently rub in a small amount of Pantho-F Cream 2 or 3 times daily

or as required. **Sup:** In tubes of 5 and 20 Gms.

Parepeptol, Chicago Pharmacal Company, Chicago 40, Illinois. Each fluid ounce contains: Paregoric, 60 min., pepsin, 4 gr., bismuth subsalicylate, 0.8 gr., salol, 1.6 gr., methyl salicylate, 8 min. For diarrhea and stomach complaints. **Dose:** For adults, from 2 to 4 teaspoonfuls repeated every hour or two according to the severity of the symptom; for children, ¼ to one teaspoonful according to age, every hour or two. **Sup:** In 4 ounce, pint, and gallon bottles.

Sterane, Pfizer Laboratories, Div. of Chas. Pfizer & Co., Inc., New York. A synthetic crystalline steroid hormone. Sterane (prednisolone) is an analog of hydrocortisone. For treatment of rheumatic arthritis and such conditions as bronchial asthma, pemphigus vulgaris, acute disseminated lupus erythematosus, exfoliative dermatitis, atopic dermatitis, ulcerative colitis, periarteritis nodosa, scleroderma and dermatomyositis. **Dose:** Administered orally. Suppressive dose for rheumatoid arthritis averages 30 mg. daily. Maintenance dose ranges from 5 mg. to 20 mg. (Cortisone maintenance doses usually range from 30 to 50 mg. daily). **Sup:** In bottles of 20 tablets, each containing 5 mg. of Sterane.

Tronolen Lotion, Abbott Laboratories, North Chicago, Illinois. Contains Tronothane hydrochloride (pramoxine hydrochloride, Abbott) 1% di-paralene hydrochloride (chlorcyclizine hydrochloride, Abbott) 2%. For relief of surface pain or itching in various dermatoses, pruritic syndromes, minor burns or sunburn, poison ivy, oak or sumac, insect bites, athlete's foot, abrasions, chafing, diaper rash, scalds. **Dose:** Administered 3 or 4 times daily or as directed by physician. Prolonged use or application to extensive areas of the body is not recommended. **Sup:** In 75-cc. plastic squeeze bottles.

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results in therapeutic **sulfonamide** blood levels

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"Sulfonamides in an oral fat emulsion vehicle are absorbed to higher and more prolonged blood levels in experimental animals and human subjects, as compared with absorption from an aqueous vehicle."

Stephens, L. J., and Hendrickson, W. E.:
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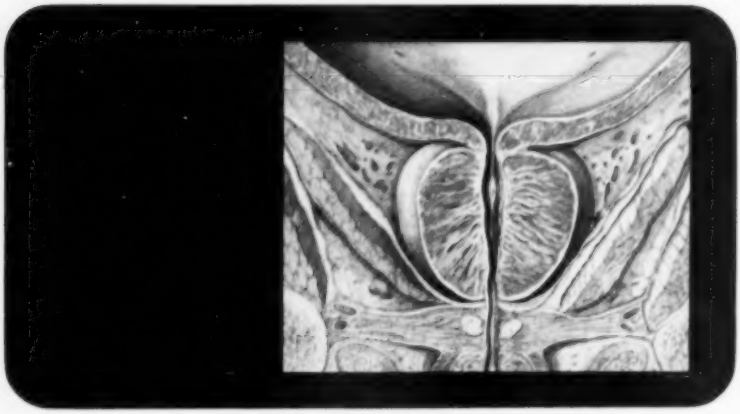

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prostatitis...

76.6% cured or improved with

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137 cases of prostatitis were treated with Furadantin with the following results:

	Acute prostatitis	Chronic prostatitis	Total
No. cases	20	117	137
Cured	15	30	45
Improved	4	56	60
Failed	1	31	32

(Personal communications to the Medical Department, Eaton Laboratories.)

Furadantin has a wide antibacterial range

Furadantin is effective against the majority of gram-positive and gram-negative urinary tract invaders, including bacteria notorious for their resistance. Furadantin is not related to the sulfonamides, penicillin or the 'mycins.

With Furadantin there is no blood dyscrasia...no proctitis...no pruritus ani... no crystalluria...no moniliasis ..no staphylococcic enteritis.

Furadantin tablets—50 and 100 mg., bottles of 25 and 100. Furadantin Oral Suspension (5 mg. per cc.)—bottle of 4 fl.oz. (118 cc.).

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with one piece cartridge-sterile needle assembly:

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—true broad-spectrum activity

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is not
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In mild, moderate, and severe hypertension, VERALBA/R usually maintains blood pressure at approximately normal levels indefinitely. It offers "combined" drug therapy that is both safe *and* effective. Establishing precise dosage is a simple process with VERALBA/R, and side effects are usually insignificant.

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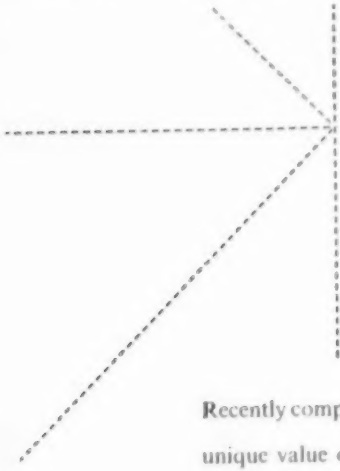
Areas of Clinical Study / One of a series



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Recently completed—1954—studies [1,2] again confirm the unique value of Roncovite (cobalt-iron) in the prevention and treatment of infant anemia.

Clinical results show that routine administration of Roncovite can completely prevent the iron deficiency which so frequently develops in the first six months of life.

RONCOVITE (*Cobalt-Iron*) *has introduced a wholly new concept in anti-anemia therapy. It is based upon the unique hemopoietic stimulation produced only by cobalt. The application of this new concept has led to marked, often dramatic, advances in the successful treatment of many of the anemias.*

EFFECTIVE

"It is a significant fact that none of the . . . cases receiving iron as well as cobalt required additional iron therapy and that the haemoglobin levels of this group remained consistently and significantly higher than those in any other group after the age of 4 months."[1]

"...there can be no doubt that the average hemoglobin values ... are greater in the cobalt-iron (Roncovite) treated group."[2]

PATIENT SATISFACTION

"... the mothers of these anaemic infants frequently stated spontaneously that the children were much improved, with increased appetite and vigour. It seems possible, therefore, that even if anaemia in premature infants does not usually produce marked symptoms, there is a subclinical debility which becomes more evident in retrospect."[1]

SAFETY

"There was no evidence of toxicity in any case under treatment ... There is nothing to suggest that cobalt in any way impairs the general progress or rate of weight gain in premature infants in the dosage employed."[1]

"The babies were closely observed daily for ill effects of the medication while at the premature unit and when they returned for check ups. None of them showed harmful effects despite the large doses ... A few of the babies ... have been followed for more than 100 days with no ill effects noted."[2]

SUPPLIED:

RONCOVITE DROPS

Each 0.6 cc. (10 drops) provides:
Cobalt chloride ..... 40 mg.
(Cobalt 9.9 mg.)
Ferrous sulfate ..... 75 mg.

RONCOVITE TABLETS

Each enteric coated, red tablet contains:
Cobalt chloride ..... 15 mg.
Ferrous sulfate exsiccated ..... 0.2 Gm.

RONCOVITE-OB

Each enteric coated, red capsule-shaped tablet contains:
Cobalt chloride ..... 15 mg.
Ferrous sulfate exsiccated ..... 0.2 Gm.
Calcium lactate ..... 0.9 Gm.
Vitamin D ..... 250 units

DOSAGE:

One tablet after each meal and at bedtime. In children one year or older 0.6 cc. (10 drops); infants less than one year 0.3 cc. (5 drops); once daily diluted with water, milk, fruit or vegetable juice.

1. Coles, B. L., and James, U.: Arch. of Disease in Childhood 29: 85 (1954); Coles, B. L., and James, U.: Journal-Lancet 75: 79 (March) 1955; Coles, B. L.: Arch. Disease in Childhood 30: 121 (April) 1955.
2. Quilligan, J. J., Jr.: Texas State J. Med. 50: 294 (May) 1954.

Bibliography of 192 references available on request.

RONCOVITE

The original, clinically proved cobalt-iron product.

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BROTHERS, INC.

Cincinnati, Ohio

In the Service of Medicine Since 1870

Traffic Accidents

WALTER D. ABBOTT, M.D.
JOHN T. BAKODY, M.D.
Des Moines, Iowa

Because the majority of head injuries seen in present-day American civilian life are the result of automobile accidents, this discussion will be confined to that type of injury, emphasizing the physical factors involved, as well as the diagnosis and treatment.

In the case of motor vehicle occupants, the velocity of the car is the velocity of the individual and his parts. The speed and kinetic energies of the involved vehicles determine, to a great extent, the severity of the injuries suffered.

In a rear end collision, and this includes about fifteen percent of all automobile accidents, the car which is struck from behind is accelerated and the occupant's body is thrust forward by the seat on which he is sitting, but the head and neck, since they extend above the top of the back of the seat, are unsupported and at first remain backward with the neck in hyperextension, and then are thrown forward with the neck in extreme flexion. This is the whiplash injury, which may cause cerebral concussion, neck injury, or vertebral fracture. (Fig. 1.)

In a head-on collision, the car, along with its occupants, is suddenly decelerated and the occupants' bodies are thrown forward. The driver may have his chest driven forward onto the steering wheel and post, while the guest passenger may strike his head on the windshield, on the dash-board, or the head may glance off the windshield and be deflected downward onto the dash-board. In this instance the weight of the head continues its forward momentum after the moment of the impact, and the forward momentum is proportional to the speed at the moment of collision. Such a mechanism usually produces cranio-facial injuries. (Fig. 2.)

The car door may be forced open by the impact, and lateral forces applied to the occupant may throw him out of the car, where he suddenly decelerates on the ground. Where high speed is involved such injuries are usually severe. (Fig. 3.)

Stored objects within the automobile, as they acquire new velocities at the moment of impact, may fly about the car and injure the occupants. Loose objects, often stored on the catch-all shelf above the rear seat and beneath the rear window, react to the forces of acceleration or deceleration affecting the car, and fly through the air to strike the heads of the occupants and to produce head injuries. (Fig. 4.)

Rotary and shearing stresses can be applied to the body and head when the resultant of more complex forces, in addition to those of a linear acceleration and deceleration, is found. In such instances the occupants may strike the roof of the car, resulting in head and back injuries.

Compression forces are applied when the vehicle overturns and pins the occupant beneath it. This results in compression concussion when the head is involved. (Fig. 5.)

In pedestrian accidents, where the velocity of the pedestrian can largely be disregarded, forces of large magnitude are applied at the moment of impact. The energies from acceleration, deceleration, and rotary shear are applied in an additive and explosive fashion to the hapless victim. (Fig. 6.)

We turn now to a brief consideration of the position of the occupant within the motor vehicle. It has been demonstrated that the guest passenger seat, and by that we mean the right front seat position alongside the driver, is the most dangerous seat in the car. Accidents involving this position include children standing on the passenger side of the front seat, and infants and children sitting on their mother's lap. This is the death seat, with injuries occurring in a proportion of three to one, as compared with the driver. It would appear that the front seat passenger runs a greater risk than the driver, since the driver in deceleration types of injury can impede the forward momentum imposed upon his body through his contact with the steering wheel, while in the absence of such re-

Fig. 1. REAR END. This is the mechanism of the whip-lash injury to the neck. The force from the rear is applied through the seat support to push the body forward. The unsupported head first stays backward in hyperextension and is then thrown forward into extreme flexion.

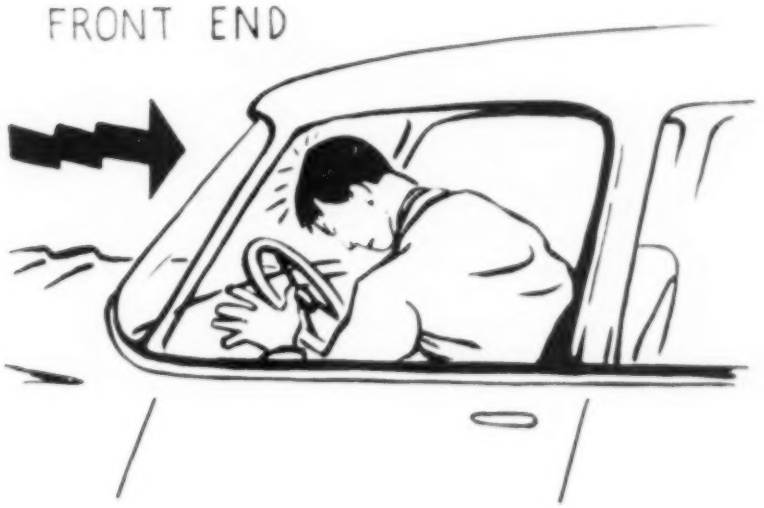

Fig. 2. The vehicle stops suddenly and the driver decelerates against the wind-shield, dashboard, or steering column.

straint the guest is thrown up against the wind-shield or dash-board. The rear seat passenger is also, of course, liable to injury, but again in lesser proportion than the guest passenger in the front seat.

We turn now to a more specific study of the local forces involved in head injury.

By definition, direct violence to the head is injury by a moving object. The head may be either fixed or un-fixed in space, and less damage occurs when the head is unfixed. The energies transmitted to the head cause the skull to become deformed, with consequent generalized compression of the intracranial structures. Such an injury from direct violence may be the result of flying objects within the accident vehicle, as already mentioned.

Indirect violence is when the head in motion comes into contact with a non-moving or slower moving object. This is the usual mechanism in head-on collisions, when the head is thrown forward onto the wind-shield or dash-board.

The quantity of energy absorbed by the head in a given period of time, and this is directly related to the velocity of the accident vehicle, determines the intensity of the response or the severity of the injury. The effect of the head injury on the brain is caused by mechanical derangement of cells, centers, or supporting structures within the brain.

Causes of the mechanical derangement of the brain are:

1. Deformation of the skull.
2. Suddenly increased intracranial pressure at the time of the blow.
3. Mass movements of the brain.
4. Transmitted energy without increased intracranial pressure.

The type of brain injury is to a great extent, then, determined by the acting forces. When a blow is administered to the head, a portion of that energy is translated into deformation of the skull. Another portion of it is translated into moving the head, resulting in mass movements of the brain; the intracranial contents not moving as fast as the cranium abut against the points of impact within the skull. Concussion is produced by the change in brain movement, changes of acceleration, deceleration, compression, and rotary shear, which may be acting singly or in combination.

Fracture of the skull may result from produced deformations of the skull in excess of the bone's elasticity. Cerebral lacerations and contusion reflect the magniture of the energies involved. Laceration of the meningeal arteries by skull fracture can cause extradural hemorrhage; shearing stress can cause venous bleeding, leading to subdural hematoma.

The automobile manufacturers have performed a great service to the motoring public by making automobiles ever safer. While mechanical failure accounts for fewer accidents, the human failure remains important. Perhaps the human error can be reduced through improvement in ways of enforcing traffic and highway regulations. Nonetheless, the practical medical problem of applying preventive methods to vehicular accidents remains, if the terrible toll from traffic accidents is to be ameliorated. A mere doctor cannot help but

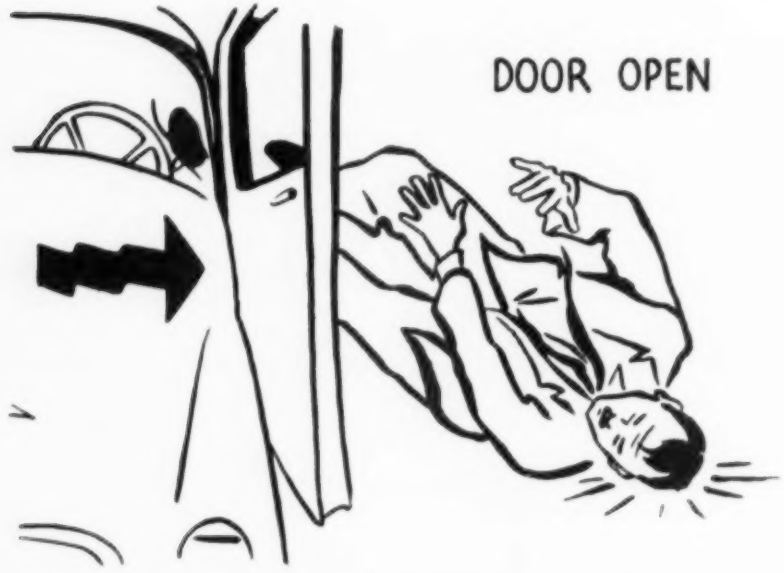

Fig. 3. DOOR OPEN. The door is thrown open and the patient is thrown clear of the vehicle to decelerate on the ground or highway.

deplore the fact that safety equipment for cars is not as readily available as other standard and optional items. We can only hope that the present emphasis on power will give way to an even greater emphasis on safety for the occupants of vehicles involved in accidents.

Many of these patients are in varied degrees of shock and should be treated for such accordingly.

It is important to stress careful removal of the injured from the crash vehicle. We feel that if possible, a doctor on the scene can prevent further injury by a zealous, well meaning but ill-informed Good Samaritan. Transportation ideally should be supervised by a physician, nurse, or ambulance attendants well versed in methods of first aid.

The usual bleeding from a scalp laceration can be controlled by a compression bandage. Associated injuries of the chest, viscera, spine, and extremities should be carefully considered.

When the patient is admitted to the hospital full attention must be given to the patient, regardless of the issue of alcohol. Unfortunately a patient who has the odor of liquor on the breath may be the victim of hasty judgment, and even death ensue by quickly incarcerating the individual in jail rather than a deliberate evaluation in the hospital.

Bleeding patients should be controlled and detailed inspection of the patient as a whole should begin.

Because many individuals have ingested food and drink before the accident, and most patients with a brain injury vomit, care from aspiration of the emesis into the lungs is imperative. This often can be facilitated by placing the

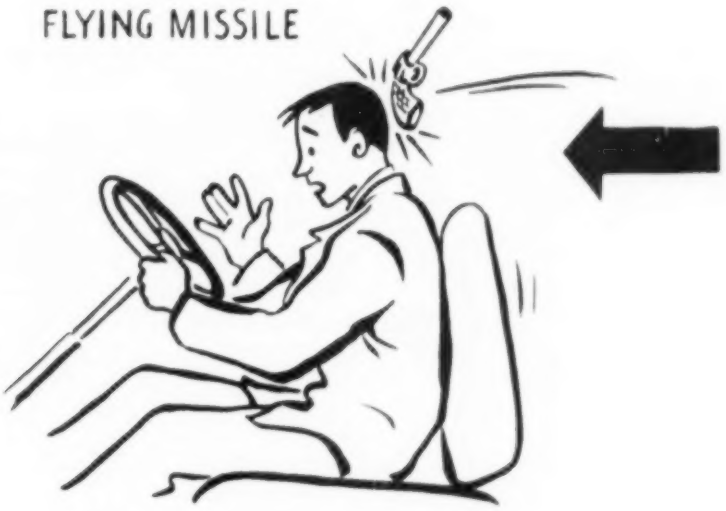

Fig. 4. FLYING MISSILE. Stored objects within the vehicle, such as a toy gun, fly through the air after impact to cause direct violence to the head.

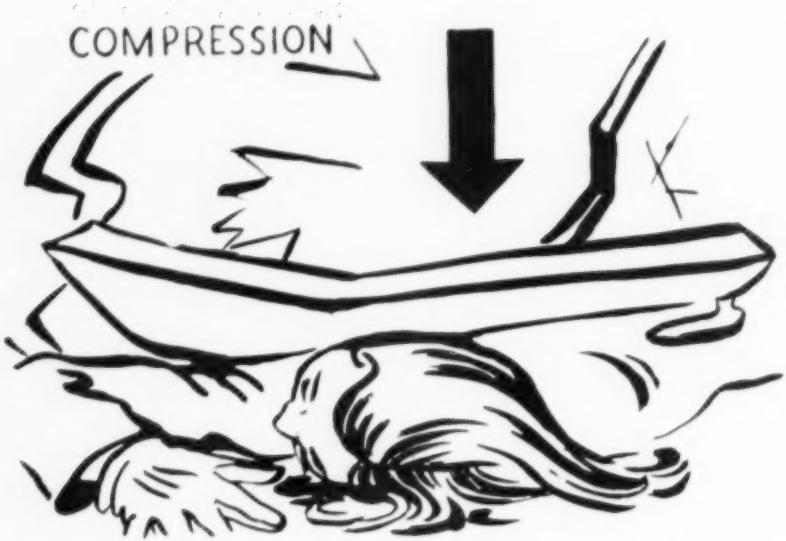

Fig. 5. COMPRESSION. The victim is subjected to the crushing force of the overturned vehicle.

individual in the prone lateral position, which also is of benefit in draining the bronchial tree of mucus by gravity when the foot of the bed is elevated.

Adequate airway is of extreme importance and early tracheotomy is advocated if there is any doubt about embarrassed respirations, due to obstruction.

A careful and frequent check of blood pressure, pulse, respirations, and temperature will serve as a guide for subsequent therapy. Observation of the pupils is important as a unilateral dilatation of one pupil may be the first reliable sign of hemorrhage on that side of the brain.

Bleeding or drainage of cerebrospinal fluid from the nares or ear canals should be allowed to drain as it may be a life saving agent, and packing of the cavity might result in infection.

Palpation of the scalp and face may reveal a depression, but a diagnosis of depressed fracture should never be made without corroboration by x-ray.

A rise in temperature, slow pulse, slow or rapid respiratory rates and a high pulse pressure indicate compensated medullary compression, and should be attacked by the judicious use of spinal fluid drainage or the intravenous administration of hypertonic fluids, or both. Spinal puncture, carefully performed, is a valuable diagnostic and therapeutic agent. The color of the fluid should be noted as well as manometric measurement of the initial pressure. If the initial spinal fluid pressure is over 200 mm. of water, the fluid should escape slowly until half of the initial pressure is recorded, except that if the removal of a small amount of fluid causes a marked fall in pressure (the "critical" lumbar puncture of

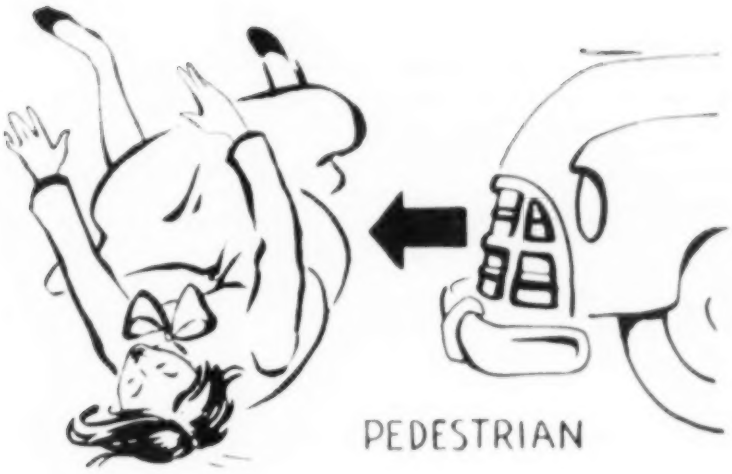

Fig. 6. PEDESTRIAN. The vehicular force is applied directly to the pedestrian, following which additional forces of deceleration may take place.

Munro), then the spinal drainage should be immediately discontinued.

As mentioned above, associated injuries must be assessed and weighed as to their relative importance. A major chest or visceral injury takes precedence over a minor concussion, but a fracture of an extremity should not appear paramount over a major concussion or cerebral laceration.

The development of deepening coma, paralysis contralateral, hyperactive reflexes, and pathologic toe signs should point to a localized hemorrhage, and perhaps the need for surgical intervention.

Compound fractures of the skull are apparent without the aid of x-ray, and should be repaired as soon as the general condition will permit. All lacerations of the scalp should be palpated by a finger in a sterile glove to determine the existence of a compound or depressed fracture. Basal skull fracture is evident with the escape of blood and spinal fluid, or both, from the ears, nose, and nasopharynx.

Simple depressed fractures of the skull should be elevated when corroborated by x-ray, and when the patient's general condition permits.

Localized hemorrhage, either epi or subdural, should be arrested and the clot excavated as soon as possible. This is usually manifest when there is unilateral dilatation of the pupil and contralateral paralysis associated with hyperactive and pathologic signs in conjunction with deepening coma and alteration of the vital signs.

X-rays of the skull, facial bones, and cervical spine should be taken in all instances when the general condition permits. Far too many fractures of the facial bones and cervical vertebrae have been overlooked.

Summary

Thus, adequate examination, close observation, early neurosurgical and other appropriate consultation will be rewarded with a lowered mortality in these all too frequent types of accidents.

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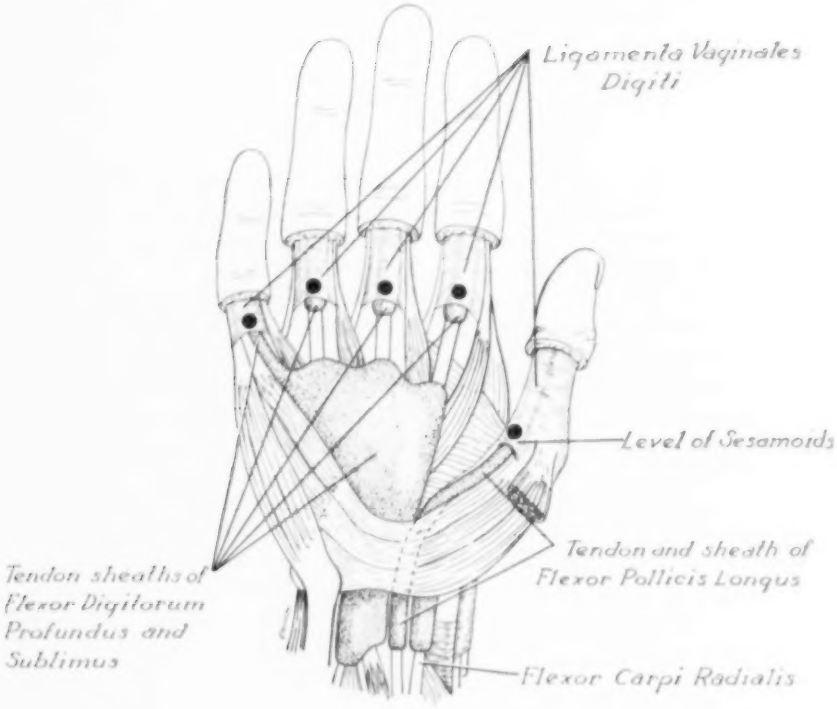


Palmar surface of the hand. Solid dots (•) indicate sites of pain and tenderness in stenosing tenosynovitis of flexor pollicis longus and of flexors of the four lesser fingers.

The Periodic Physical Examination

This summarization attempts to cover the essential information on the subject and is designed as a time-saving refresher for the busy practitioner.

Sometime ago there was printed in a lay magazine for veterans an article describing various methods to choose a family physician. The article was an interesting summary of various standard procedures of choosing a physician, and was exceptional in one point. The author advised his readers to invest a small sum and ask the prospective physician to do a complete physical examination. The author believed that in observing the physician's method and attitude in doing the examination one could get an excellent idea of the physician's capability.

It is unfortunate that there are a few physicians who do regard the practice of medicine as dealing only with the obvious. The patient is sick or not sick. There is gross pathology present or there is not. He has little interest in the psychosomatic, the neurotic, or even the supposedly healthy. The complaint of a sore throat leads to a throat examination, that is all. The patient may receive a "shot" and be dismissed. Complaints by the way of aching bones, belching, or cardiac palpitations are quickly brushed off. The patient came to the office for the throat and nothing else.

If one were to present himself to such a physician for a physical examination he would probably get a blood pressure reading, a glance in the throat, and a quick auscultation of the chest. In a good percentage of the cases, the patient would not even undress, and the entire examination would take place amid hurried button and shoulder strap maneuvering. This businesslike atmosphere not only cheats the patient but does immense damage to the physician and the profession as a whole. It provides ammunition for those who clamor for socialized medicine.

Whenever the medical profession is too busy to care for the minor complaints of patients, there soon develops an auxiliary profession to relieve it of the burden. The general practitioner never learned, is not interested, or doesn't find it profitable to cut corns or take care of aching feet. We now have chiropodists who are perfectly willing to do this for them.

The general physician is not interested in refracting eyes unless he has had a three year residency in ophthalmology, so we now have optometrists who will gladly do it for nothing if one purchases glasses from them.

It has been estimated that almost 50% of a general practice is composed of neurotic complaints. Because the average physician feels that he cannot charge more than his usual fee no matter how long the consultation, he frequently cuts his interview short and leaves the patient unsatisfied. The psychiatrist will give the patient all the time needed at $25.00 per hour. Since many patients cannot afford this, we now have a large part of our mental illnesses treated by psychologists, social workers, and psycho-quacks.

For the above reasons lay societies, unions, and federal and city governments have entered the health field.

Many years ago some states started V.D. diagnostic services. This started the trend and we now have T.B., cancer, and diabetic surveys, nutritional centers, and cardiac programs. This all stems from the same pathology. The private physician was not doing a proper job, and someone else entered the picture to do his job for him.

The Physical Examination Benefits the Patient That a thorough physical examination benefits the patient may seem obvious to anyone. Physical examination is a poor expression, and perhaps the words "general health evaluation" is preferable. This should contain not only a physical examination but also an emotional evaluation. This offers the patient a chance to sit down with his health advisor and discuss his anxieties. A thorough history and physical accompanied by such a leisurely chat is a rewarding experience for both the physician and the patient. Such a consultation well performed will leave the patient with a feeling of well being. The patient knows he has received a thorough going over and has had all his questions answered. It has been well worth his time and money.

Physical Examination Benefits the Physician There is an old proverb which states "Out of sight, out of mind." This is especially true about patients. Many physicians consider a patient who has not consulted them for three years as an inactive or lost patient.

The lay public has been educated a great deal in recent years to periodic physical examinations. They are constantly reminded by newspaper and television advertisements to see their doctor once a year. Insurance programs, experiences in the armed forces, cancer and heart societies, have made people examination conscious. The average person would be happy to consult his physician once a year for an evaluation, if he thought it would be worth while. The detering factor for most is that they feel that they would not get a complete and up-to-date examination in their private physician's office. Some feel it might possibly be embarrassing to take up the physician's valuable time when they have no actual complaints. So they proceed to get their chest x-rayed by the T.B. Society, their urine tested by a diabetic survey, and their blood pressure recorded for fifty cents at Coney Island. The more affluent check into one of the large hospitals which offer the opportunity for a physical examination. The workup consumes three days, the patient receives a complete battery of tests, and is examined by at least fifteen specialists. The bill often runs into three figures and the only thing missing is the diploma for successfully completing the obstacle course.

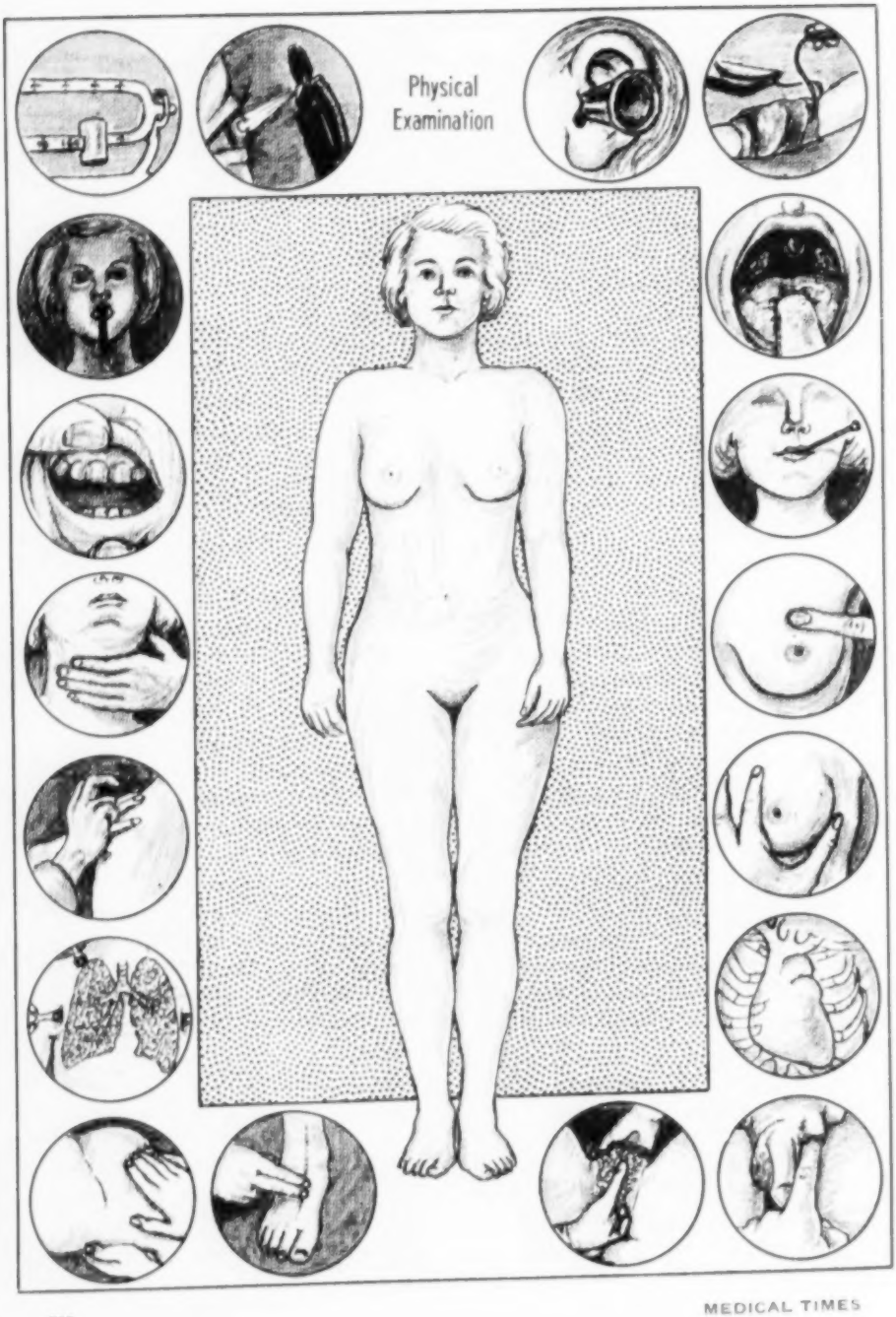
All this represents a substantial loss of income to the private physician. What is more important it represents a loss of patients to hospital and organizational medicine. The simple process of doing a thorough and complete health evaluation increases the patient's confidence and rapport with his physician. It serves as a practice builder, and a practice getter. It maintains all his patients in the active file.

Technique The examination should be done by appointment only. This serves two main purposes. It impresses the patient that this is an important examination, and the physician considers it so. The physician does not regard it as just another office visit and is willing to set aside a special period of his day just for the patient's health evaluation. With the physician it is a matter of convenience. A decent health evaluation requires a lengthy history. This is very time consuming and should not be interrupted by calls and messages. Frequent interruptions not only upset the chain of thought and line of questioning, but also disturbs the patient. It leads the patient to believe that the physician has more important things on his mind and may lower the patient's confidence in the entire procedure.

History There has been a tendency in recent years to place too much emphasis on printed forms. In many clinics as in the armed forces the patient takes his own history before even seeing the doctor. He receives many pages of printed material containing a lengthy list of symptoms and complaints. He is instructed to relive his past few years and check off anything that bothers him. A nurse or assistant then underlines in red the positive statements and the material is then forwarded to the examiner. The physician then scans the list, asks a few pointed questions, and proceeds with the physical. Such lists save time and are much recommended by efficiency experts and medical managers. Their use, however, may cause some patients to feel that your primary interest is to run them through your office as quickly as possible.

By its very purpose a periodic health evaluation is done on a supposedly healthy patient. Since the patient does not present complaints, it is the physician's obligation to probe for them. Examine carefully particularly for T.B., V.D., cancer, diabetes, cardiovascular and renal disease. Most patients fear these illnesses and if they can be relieved of doubt concerning them, the examination will have served its main purpose. Special attention is shown to possible signs of chronic illness. A few examples are weight alteration, fatigue, sweats, temperature, and a change in bowel habits. One must be extremely careful in evaluating these symptoms. Weight alteration can be simply a result of voluntary dieting, or a change in the patient's financial status. Fatigue likewise can represent a job dissatisfaction, or a marital frustration. The various complaints elicited should be carefully balanced against the patient's emotional makeup. A few moments extra spent in the history may often save the patient hundreds of dollars, and the physician many hours of work.

An important part in the history as mentioned above is to discover what illness if any the patient is afraid of, and what stimulated his request for an examination. Most patients when they call for an appointment are afraid of something. Perhaps they have lost weight recently and have started to


Physical
Examination

cough, and are afraid of T.B. An ulcer on the body that hasn't healed in months has caused them many a sleepless night since they have read the Cancer Society's bulletin. Frequent thirst and urination may cause tremendous anxiety in an individual with a family history of diabetes. In any case there is usually a hidden fear, and it is up to the physician to find out what it is and to prove or disprove it during the examination.

Perhaps on just one occasion in recent months there was a speck of blood in the sputum. Is the weight loss that is evident really due to a diet after all, or can it be blamed on the anorexia that has been present for the last half year? How does the patient sleep at night? Has there been any change in his sleeping habits? Does he use two pillows now, where one was sufficient before? Does he need fresh pajamas daily because of intense night sweats? Has he insomnia? Are his sleepless nights due to any specific problem or an anxiety?

How many days has he missed from work in the past year? What were the reasons, and how quickly did he recover from his minor illnesses? Were any of the illnesses difficult to diagnose?

Does he enjoy his food as much as he used to? Is there just the slightest amount of bloating or distress after meals? Are there foods that apparently do not agree with him now, that never bothered him in the past? Are his stools normal in color, or is he one of the many who never bothers to look? If "abnormal" might it be caused by the type of light in his bathroom?

In questioning the female patient one must go into extreme detail about the menstrual history. Are the periods really regular? Is her 30 day cycle her true cycle, or is 30 days just a figure she has heard? Are her periods of longer or shorter duration? Are they heavier than usual? How long does a box of sanitary napkins last her now, in comparison to previous years? Is there any staining between her periods? Is there a discharge?

From the above it can be seen that in a supposedly healthy individual the physician must really play detective. He must look for clues in the history and relentlessly track them down in the physical examination. A few moments' discussion about family situations, work and neighbors is often very rewarding. We are not only searching for an obvious source of trouble as a T.B. contact, but such a discussion often reveals the patient's emotional status. Feelings about husband and children are interesting. In-law difficulty and job unpleasantries may be the underlying basis of a supposed neurotic behavior. In a good health evaluation we are interested in preventive psychiatric medicine.

The Physical Examination Under certain circumstances it may be wise to make a separate appointment for the physical examination. If the history has been lengthy and much time consumed both the patient and physician may be tired and irritable. A separate appointment may offer a new approach to the problem.

A practical point to consider is that the history and physical examination described in this article, naturally merits a higher fee than is usual for a routine office visit. The patient may understand better, and be willing to pay this higher fee if the examination consumes two visits instead of one.

The patient should be completely disrobed for the examination, and covered with only a loose sheet. For part of the examination he or she should be barefoot, and a suitable mat present for this purpose. The room should be warm and have adequate lighting.

The patient's weight, temperature, and pulse is recorded. The blood pressure is taken on both arms. It is extremely important to evaluate the blood pressure findings in the face of the patient's fears, anxiety, and possible embarrassment.

The examination should start with a general body inspection. The patient should stand a few feet in front of the physician and the entire body should be inspected as a whole. If the patient is of the opposite sex this can be done in sections as the sheet is draped in various positions. Special attention is paid to the tone and color of the skin, bulges in the abdomen, and the symmetry of the breasts. Special notation is made of all warts, corns, superficial tumors, and birthmarks. The patient's gait, balance and manual dexterity is carefully observed. The examination then proceeds from the head down.

The ears are examined with special attention paid to hearing capacity. An astute observer would have become suspicious of a hearing difficulty in the interview. The nose and sinuses are then examined for occult pathology. The eyes are gone over thoroughly. A funduscopy should be done on every patient along with an eye-sight evaluation, rough as it may be. The teeth are examined and dental care advised if needed. The buccal mucosa is searched for signs of chronic irritation, and the condition of the throat and tonsils is noted.

The neck is palpated for nodes carefully, and the size and consistency of the thyroid is estimated.

The breasts are examined with extreme care. This should be done with the patient in an upright position. The female patient is asked to point out any irregularities that she may have noted herself. At this time the patient may be instructed in the principles of self-examination of the breast.

The heart and lungs are next along with a general evaluation of the vascular system. The lungs are investigated for abnormal findings, and especially for T.B., carcinoma, bronchiectesis, emphysema, and bronchial asthma. The heart sounds, rate and rhythm, and general configuration. If possible the vital capacity is estimated.

The abdomen offers a challenge and is carefully examined for pain, tenderness, distention and for masses. The abdominal organs are palpated for size and shape. The character of the bowel sounds is noted. So frequently does one elicit G.I. complaints in the history, that it is often difficult to decide what is pathological and what is emotional. The G.U. tract is examined next. A rectal examination is a must as is a pelvic examination in every woman. The presence of a cancer in the lower rectum, prostate gland, or pelvic organs can often be discovered with an inexpensive instrument—the finger. There is now on the market a squeeze bottle disposable enema unit which provides left colon catharsis in two to five minutes. This office procedure facilitates a more complete proctological examination when desirable.

An often neglected area is the scrotum. This should be examined carefully for tumors, enlargements, and the presence of both testicles. It is amaz-

ing to the author how many men have grown to maturity suffering from cryptorchism, only to have this diagnosis made for the first time on induction into the armed forces. Since this condition has been present since birth, we can only assume that the patient never saw a physician, or that no physician he has ever consulted ever bothered to examine the scrotum.

The inguinal rings should be inspected for hernia with the patient in a standing position.

In the examination of the extremities we are interested in several points. Our preliminary inspection should have revealed the presence or absence of varicosities. Muscle tone is evaluated as well as the relative strength and joint function of all the extremities.

A formal neurological examination is usually not indicated in every case, unless the history warrants it. The examination completed so far has already tested most of the cranial nerves, and the general evaluation of the patient's gait, balance, speech, and dexterity is sufficient to rule out most neurological disorders.

Laboratory Tests As a minimum every patient regardless of his history or physical findings deserves the following laboratory studies:

1—Chest x-ray
2—Complete blood count
3—Serology
4—Sedimentation rate
5—Urinalysis

Under certain circumstances for the sake of completeness the following may also be indicated:

1—E.K.G.
2—N.P.N.
3—Cytological examination of uterine secretions

Additional tests are ordered as indicated by the history and physical examination.

Post - Examination Discussion After the examination a few moments of discussion is in order. The patient is advised of the results of the examination. All pathological findings are explained in detail no matter how minor. One must be careful of how we apprise the patient of findings of a serious nature. It is difficult to inform an active aggressive individual that he has hypertension and must slow down. Likewise, we must be tactful in informing the supposedly healthy woman that she has a suspicious lesion in her pelvis which must be investigated. On the other hand, it would almost be criminal to ignore a suspicious finding simply because the suspicion is slight and we do not wish to worry the patient. The patient has invested time and money in this examination and is entitled to the results.

Negative findings are of tremendous interest to the patient. Nothing can be more gratifying to an individual than to be told after a thorough examination that he shows no evidence of cancer, T.B. or diabetes.

Therapy is outlined for all pathology discovered. Consultation is suggested if indicated. The interview is terminated with a suggestion that the examination be repeated in a year. The patient will usually welcome this suggestion if the physician has been thorough and tactful. It may be worthwhile to ask the patient if he would like a card mailed to him about this time next year reminding him of this appointment. Follow-up appointments are made for a shorter period if the patient's condition warrants closer observation.

Many physicians after a periodic examination think it good public relations to supply the patient by mail with a brief summary of the findings. This need not go into medical detail, but a few short sentences may be indicated to again repeat what was already said, and to inform the patient that the results of the laboratory tests substantiate the clinical impression.

Conclusion

An examination performed as described above is a satisfying experience to both the patient and the physician. The patient feels he has really received a clean bill of health, and that his physician is deeply interested in his well being.

The physician gets the satisfaction of performing a job really well. What is just as important is that he has shown the patient that his own physician's office is the place where he can get the most complete and personal medical attention. His practice will benefit by this and by the proper care and correction of defects noted in the physical examination. Furthermore by little effort on the part of the physician's secretary the practitioner can insure that all his patients remain in his active file.

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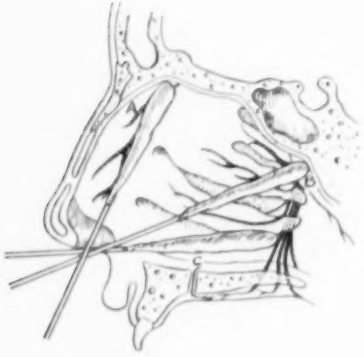

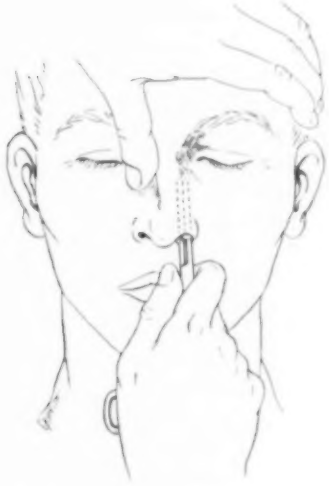

Anesthesia of nose with cotton pencils. **A.** anterior ethmoidal nerve **B.** sphenopalatine ganglion. **C.** anterior palatine nerve. Reduction of nasal fracture, using padded Kelly clamp for elevation, and thumb for molding.

Clinical Aspects of Common Exanthematous Diseases

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One attack of measles or German measles usually confers a lifelong immunity. The majority of so-called second and third attacks reflect errors in diagnosis. It is not unusual for us to find that patients, referred in with a diagnosis of measles, actually have German measles, scarlet fever, exanthem subitum or meningococcemia.

The significant advances in the control and treatment of infectious diseases have conferred on the physician a greater responsibility for making an accurate diagnosis. Untreated meningococcus infection carries a mortality rate of approximately 50 percent. Early recognition of the disease followed by specific therapy reduces the mortality rate to less than 5 percent. An erroneous diagnosis of rubella in a pregnant woman may be responsible for many months of unnecessary anguish and anxiety because of the association of this disease with congenital malformations in the newborn infant. Today, measles can be modified by passive immunization with gamma globulin; and scarlet fever can be controlled readily with adequate penicillin therapy.

The five acute infectious diseases to be described have varied etiologies and clinical pictures. The manifestation which they have in common, however, is the appearance of a generalized rash some time during the course of the illness. By discussing these exanthemata as a group it should be possible to demonstrate the striking differences between these diseases.

Etiology Measles is caused by a specific virus which is present in the nasopharyngeal washings and blood during the early stages of the disease. The agent has been propagated in tissue culture by Enders and Peebles.[1]

The virus of German measles has been demonstrated in the blood as early as two days before onset of rash and in both the blood and nasopharyngeal washings on the first day of rash.[2] Attempts to propagate this agent in tissue culture have been unsuccessful thus far.

Scarlet fever is caused by group A

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hemolytic streptococci which produce an erythrogenic toxin. The irritation of the vascular tissues by this toxin is responsible for the typical scarlatinal rash.

Exanthem subitum is a disease of infants presumed to be of viral etiology. Studies by Kempe and his colleagues[3] have indicated that the agent is present in the blood during the acute stage of the disease.

Meningococcemia and meningococcus meningitis are caused by gram-negative diplococci occurring in pairs. The organism, known as Neisseria intracellularis, is more commonly referred to as the meningococcus. It may be recovered from the throat, the blood, the spinal fluid or from metastatic foci in the skin and other parts of the body.

Clinical Picture Figure 1. illustrates some of the differences between four of the acute exanthemata. The rash of measles is preceded by three or four days of high fever, coryza, cough and conjunctivitis. The pathognomonic Koplik spots appear on the buccal mucosa two days before onset of rash and spread to involve the entire mucous membrane by the first day of rash. The maculopapular eruption appears first on the face and neck and then spreads downward involving the trunk, upper extremities, and finally the lower extremities. The rash usually disappears by the fifth day. Consequently, in the uncomplicated case the total duration of the illness is at least nine days. The

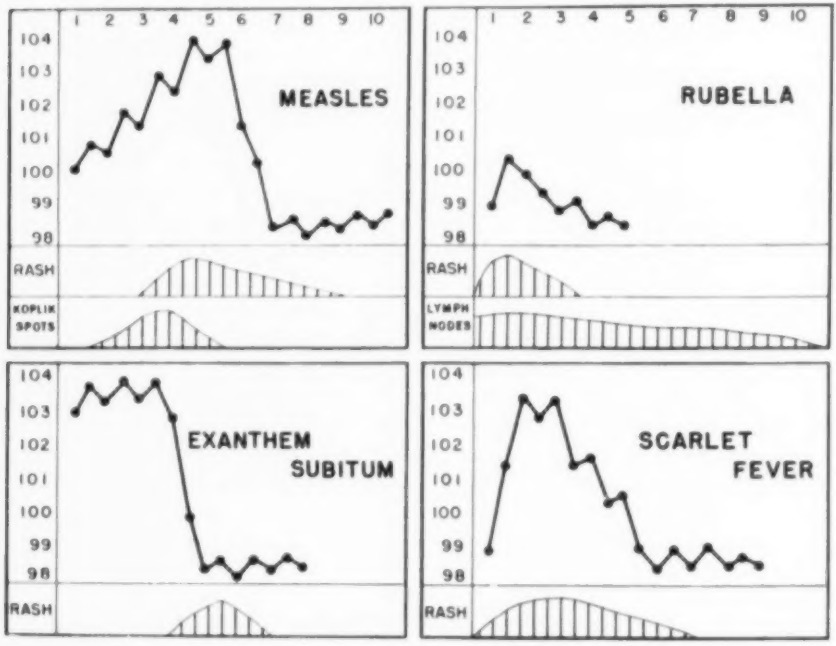

Fig. 1. Diagram illustrating the clinical course of four acute exanthemata. From Krugman, S. and Ward, R., The Rubella Problem, J. of Ped. 44:489, 1954.

most distressing symptoms are the high fever and severe cough which persist for at least five or six days.

In contrast to measles, rubella is an extremely mild illness. The rash may usher in the disease without any apparent prodomal symptoms. The temperature if elevated rarely exceeds 101°F and pre-rash symptoms if present may include one to three days of mild malaise and chilly sensations. The rash begins on the face, spreads quickly to the trunk and finally to the extremities, disappearing by the end of the third day.

The eruption is preceded by and is associated with a generalized lymphadenopathy which is most apparent in the postauricular and postoccipital areas.

Exanthem subitum (roseola infantum), is a disease almost exclusively limited to infants between six months and three years of age. It is characterized by three or four days of high fever followed by a rash which typically appears as the temperature falls to normal. In contrast to measles there is no cough, no coryza, no conjunctivitis and the infants do not appear as acutely ill as the hyperpyrexia would indicate. The diagram in Figure 1. graphically illustrates the difference between this disease and rubella. The rash is a macular or maculopapular sparse eruption which starts on the trunk, spreads to the face and extremities, and disappears within one or two days.

Scarlet fever begins with fever, sore throat and vomiting, followed within 24 hours by an erythematous punctiform eruption confined to the trunk and extremities. The rash blanches on pressure, is most marked in the flexor creases of the neck, axillae, groin and popliteal area, and subsequently desquamates. The face is flushed with circumoral pallor. The papilli of the tongue are hypertrophied, thereby presenting a "strawberry" effect. The pharynx and tonsils are reddened, edematous, and covered with exudate. The white blood count in scarlet fever is usually elevated with an increased percentage of polymorphonuclear leukocytes. Measles, rubella and exanthem subitum typically have either a leukopenia or normal blood count. Cultures of the throat usually yield group A hemolytic streptococci. The prompt therapeutic response of scarlet fever to penicillin is a helpful diagnostic aid. On the other hand, antibiotics do not affect the clinical course of the viral exanthemata described above.

Meningococcus infection should be suspected in any patient who has fever and constitutional symptoms associated with a maculopapular, petechial and purpuric eruption. These signs and symptoms constitute a medical emergency calling for prompt therapy. In contrast to the exanthemata described previously, many of the lesions associated with this infection do not fade on pressure. In severe cases the hemorrhagic areas become necrotic. A fulminating infection may be complicated by circulatory collapse and shock ("Waterhouse-Friderichsen syndrome"). The disease usually begins as a nasopharyngitis, then progresses to a septicemia, and frequently ends up as a meningitis. The diagnosis is confirmed by culturing the organism from the throat, blood, spinal fluid or skin lesions. Meningococci may be recovered directly from the petechial lesions by smear.

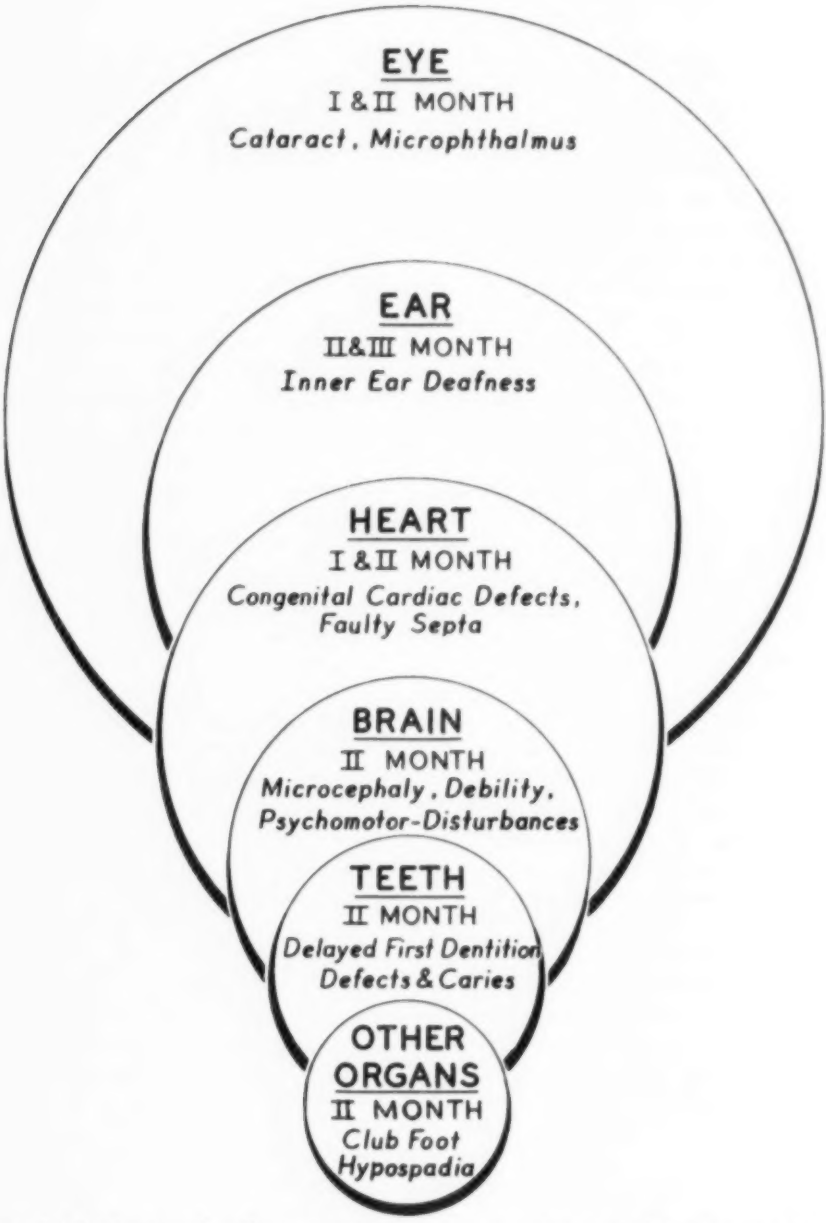

Fig. 2. Distribution of malformations that may arise as the result of German measle contracted during the first three months of pregnancy compiled from the general literature of 1948.
The size of the circles approximately corresponds to the frequency of the respective malformation (adapted from Gasen).

Management of the Acute Exanthemata

Measles The uncomplicated illness requires only symptomatic therapy. Antibiotics are indicated for bacterial complications such as otitis media, sinusitis, cervical adenitis and pneumonia. Gamma globulin should be given to exposed susceptible children of any age for the purpose of either modifying or preventing the disease. In general, hospital or institutional contacts should be given a protective dose (0.1 cc. per pound) in an attempt to control an outbreak. Children at home, however, should be permitted to develop modified measles which presumably confers a lifelong immunity. A modifying dose of gamma globulin is 0.02 cc. per pound of body weight.

German Measles This disease is usually milder than the common cold and requires only symptomatic therapy. However, rubella acquired by a woman during the first trimester of pregnancy may be complicated by the development of congenital malformations in the newborn infant[4]. Spontaneous abortions and stillbirths have also been attributed to maternal rubella infection[5]. This situation has created a rubella problem which has raised important questions about the management of the pregnant woman who has either been exposed to or has developed the disease. This problem has been discussed in detail in another publication[6]. At the present time we are recommending that susceptible pregnant women be given 20 cc. of gamma globulin intramuscularly following exposure to rubella. Deliberate exposure to the disease before the childbearing period should be encouraged. However, this "active immunizing" procedure should be rigidly controlled in an effort to prevent the unwitting exposure of pregnant women.

Exanthem Subitum This disease cannot be accurately diagnosed before the appearance of the rash, at which time the infant is well. Occasionally, the illness may be ushered in by a convulsive seizure. Symptomatic therapy is indicated. Antibiotics do not alter the clinical course. There are no serious complications.

Scarlet Fever Penicillin is the drug of choice for the treatment of this disease. Within 24 hours there is usually a prompt therapeutic response. The temperature becomes normal and toxic symptoms subside very rapidly. Adequate penicillin therapy will prevent the early bacterial complications such as otitis media, cervical adenitis and sinusitis; and it will also reduce the incidence of such sequelae as rheumatic fever and acute glomerulonephritis.[7] Adequate penicillin therapy of scarlet fever and other streptococcal infections may be achieved by any one of the following schedules which will maintain an effective bactericidal level for at least 10 days: (1) one intramuscular injection of benzathine penicillin G* 600,000 U for children and 1,200,000 U for adults, or (2) oral penicillin in divided doses of 1,000,000 units daily for 10 days, or (3) a combination of intramuscular crystalline procaine penicillin 600,000 units once daily two or three days followed by 1,000,000 units of oral penicillin for the remaining seven or eight days. Patients who are sensitive to penicillin may be treated with one of the broad spectrum antibiotics such as tetracycline or oxytetracycline for a 10 day period.

* Bicillin, Injection, Wyeth Laboratories.

Meningococcus Infection Because of the frequency of meningitis and the possibility of circulatory collapse and shock these patients should be hospitalized immediately. A sulfonamide, either sulfadiazine or sulfisoxazole,** is the drug of choice. A dosage of 100-200 mg. per pound per day is divided into six doses every four hours. In moderately severe and very severe infections the drug should be given intravenously for the first 24 hours or longer if necessary, and penicillin should be added to the treatment also. Improvement is noted by 48 to 72 hours but the drug should be continued for seven days following the return of the temperature to normal. In the event of either penicillin or sulfonamide sensitivity, one of the broad spectrum antibiotics may be used. The blood pressure should be checked at frequent intervals. If there is any indication of hypotension, then cortisone therapy would be indicated. Exposed contacts can be protected with sulfadiazine 1.0 to 2.0 gm daily for two or three days.

** Gantrisin, Hoffmann-La Roche, Inc.

Summary

The clinical aspects of five common infectious diseases characterized by fever, constitutional symptoms and a rash have been reviewed. The importance of differentiating measles from German measles, from exanthem subitum, from scarlet fever, from meningococcus infections, has been stressed. The significant advances in the control and treatment of these diseases has placed a tremendous responsibility on the physician. Early accurate diagnosis followed by early specific therapy contributes to a much better prognosis.

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Premenstrual Tension

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As the complexities of present day life multiply, more and more effort must be devoted to circumvent the effects of the pressures which accompany them. Tensions submerged during periods of lesser strain may erupt and produce visible manifestations which demand serious medical consideration. In no other area does this appear to be more true than in many of the cyclic phenomena which accompany and complicate menstrual activity.

Prior to 1931 almost no attention was paid to disturbances which preceded the menstrual flow. In that year Novak[27] described the association of vulvar edema, gastro-intestinal upsets, hysteria and epilepsy, as well as many other symptoms with menstruation. In most cases these symptoms were ascribed to a menstrual toxin. He also noted that many patients with arthralgias exhibited premenstrual elevation of temperature. This was considered as evidence of rheumatic infection, but Novak mentions a case report in which pain and swelling disappeared with the onset of menses for several consecutive cycles. It is possible that the elevations of temperature were evidence of ovulation, not infection. Novak also cited work by Dieckmann and others (undocumented) on breast changes "characterized by a marked development of the lobular acinous tissue during the premenstrual epoch" which disappeared almost completely after the onset of menstruation.

Independently, Frank[1] reported on the regular appearance of these and other symptoms in certain patients during the interval immediately preceding menstruation. Apparently he was the first to use the term "premenstrual tension" to describe such a symptom-complex. He ascribed the various symptoms of premenstrual tension to the retention of abnormally high amounts of estrogen secondary to a decreased rate of excretion. He reported good results after the use of diuretics and saline laxatives to increase excretion of estrogens. He also advocated x-ray therapy to the ovary to decrease the amount of circulating hormone, although he did admit that the pituitary gland might be the primary cause of hyperestrogenemia.

In view of the scarcity of information in the previous literature, it is interesting to note that discussants of

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Frank's paper reported they had long been aware of such symptoms in some patients. However, they were unwilling to impute them to a single condition, and did not believe these constituted a true complex. Since this classic presentation, an increasing amount of interest has been devoted to premenstrual tension, and numerous subsequent studies have served to define it more clearly. Never-the-less, there is as yet no unanimous agreement as to its cause, frequency of incidence, or the significance of its effects.

Premenstrual tension is characterized by the cyclic appearance of certain symptoms which increase in severity during the week to ten days preceding the flow, only to greatly diminish in severity or to disappear with the onset of the menses. Pain and swelling of the breasts, abdominal bloating, backache, leg cramps, weight gain with or without visible edema of the ankles and face, marked exacerbation of acneiform eruptions, asthmatic episodes, migraine and other types of headaches, anxiety and depression or irritability and restlessness, insomnia, vertigo, as well as marked changes in thirst, appetite and sexual desire are the more common symptoms. Some or all of these may be experienced, and their intensity may vary from one woman to another, and even from one cycle to another in the same woman.

Considerable controversy exists concerning the cause or causes of premenstrual tension which obviously are intimately associated with cyclic hormonal activities. Its most visible manifestations—the weight gain often accompanied by visible edema, the swollen breasts, the obvious pelvic pain and abdominal congestion—are undeniably the direct reflection of water retention. Furthermore, it is an admitted fact that localized areas of water retention in various segments of the brain can give rise to many of the psychologic symptoms encountered in premenstrual tension.

Attempts to correlate the interplay of ovarian hormones with disturbances in body water balance have been numerous. Since, in contrast to the pre-ovulatory phase, the premenstrual aspect of the cycle is characterized, except during its very last moments, by a preponderance of progesterone, it was inevitable that subsequent investigators should seek to confirm Frank's hypothesis that too much estrogen during the latter half of the cycle resulted in premenstrual tension. This question was intensely studied by Thorn and his associates[13, 24, 35] who pointed out that the administration of large amounts of estrogen evokes salt and water retention. Similar phenomena are also induced by progesterone, testosterone and the corticoids. The thesis that high amounts of circulating estrogen are responsible for the water retention of premenstrual tension has been endorsed by many subsequent investigators including Hurxthal and Musulin.[14]

Undoubtedly many of those who have studied premenstrual tension attribute it to an absolute or relative increase in circulating estrogens. Yet the evidence is far from convincing that estrogen per se can induce premenstrual tension. Otherwise the characteristic signs and symptoms should be encountered during the preovulatory phase, or during the last trimester of pregnancy when estrogen production is at its peak. Since high estrogen levels are not commonly encountered in premenstrual tension, some have speculated that the tissues

may be especially sensitive to estrogens during the premenstrual phase. Others, such as Morton[19] introduced the concept that the absolute level of circulating estrogen is unimportant, but that the inter-relationship between the amounts of estrogen and progesterone is the determinant factor. Thus, it is alleged that premenstrual tension is the result of a disturbance or imbalance in the estrogen-progesterone ratio. If the normal ratio were quantitatively defined, and if premenstrual tension were invariably associated with deviations from this ratio, then this theory might become valid.

Evidence of or explanation for an absolute or relative excess of the estrogen level in premenstrual tension is lacking. Frank had postulated a decreased rate of excretion. Others[15, 19] feel there is overproduction, possibly secondary to pituitary gonadotropes. Biskind[3] postulated failure of inactivation of estrogens by the liver. The role of the liver in estrogen metabolism in the experimental animal has been determined, and the requirement of thiamin for the utilization of estrogen by the surviving liver slice is established. The frequent occurrence of gynecomastia as one of the stigmata of hepatic dysfunction indicates the possibility of a similar relationship in man. Zondek[16] believes that premenstrual tension is an allergic response to normal levels of estrogen. On the other hand, Gillman[9] emphasized that many of the symptoms could be evoked by progesterone, but that neither do all women react alike, nor can the extent of the reaction be correlated with the dosage of progesterone.

Causal relationship with premenstrual tension has also been attributed to the antidiuretic activity (ADS) of the posterior pituitary. Pitressin® has similar activity. This hormone favors water retention since it stimulates water resorption from the distal tubules of the kidney. Significantly, several investigators[1, 24, 27, 31] have reported abnormally high urine and blood titers of ADS in patients with premenstrual tension. Brickers[2] reported the production of typical symptoms by the injection of Pitressin.® Lloyd and Lobotsky[17] reported a sharp decrease in the level of ADS blood level during the postmenstrual diuresis, with a rise premenstrually.

In a recent contribution to the symptomology and etiology of premenstrual tension, Rennie and Howard[26] described hypoglycemia and hypoglycemic response to the ingestion of glucose as characteristic in patients with premenstrual tension. Morton et al.[21] reported similar findings. This latter group attributes the "jitteriness", fatigue, tendency to drop things, hunger and craving for sweets to the low blood sugar level of such patients. They considered the hypoglycemia resultant from vagal overactivity and hyperinsulinism. This interesting concept, not yet confirmed, postulates a highly selective vagal effect. Billig and Spaulding also discuss this phase.[4] None of the typical manifestations of vagal activity on the stomach, heart or lungs are evident in premenstrual tension, and testimony that the rate of secretion of insulin in man is under such vagal control is doubted by many. Craig, however, reports success with the neurovegetative approach to therapy in premenstrual tension.[8]

Reports differ widely as to the frequency of premenstrual tension. Some state that as high as 50-75% of women suffer from this condition during the

period of reproductive activity. Others consider it a relatively minor problem. We believe that disparity in opinions is due to primary differences in the definition of premenstrual tension. Our experience is that a carefully taken history will reveal that a high percentage of menstruating women exhibit some symptoms of premenstrual tension. In many, the symptoms are not present to the degree which produces real inconvenience. Thus Hurxthal and Musulin[14] state that women accept the premenstrual phenomena as a matter of course and that it is doubtful whether any therapy for the condition is either practical or necessary. Yet, they readily admit that "others experience such distress . . . that therapy is justified". Our experience is similar, and is exemplified by our examination of a large group of nurses. Questionnaires revealed that a high percentage of these subjects experienced typical symptoms of premenstrual tension. Thus 69% complained of fulness and tenderness of the breasts, 62% of depression, intestinal upsets or bloating, or backache, 59% of fatigability and 51% of irritability during the premenstrual interval. When the symptoms were regrouped as to primary complaints, it was seen that emotional tension was experienced by 39%, some type of congestion by 32%, and actual physical discomfort by 29%. Yet only 6.5% had ever considered requesting relief at any time from these symptoms.

This disparity between the frequency of the reported symptoms and the failure to request relief might be attributed either to ignorance that the symptoms are amenable to treatment, or to the absence of major inconvenience. In the group of nurse subjects the latter appears to be the explanation. Even when effective regimens of therapy were prescribed very few were sufficiently interested or co-operative to follow the suggested treatment. Such an attitude is completely different from that expressed by the many patients who consult their physician for relief. These women experience real distress from premenstrual tension, sufficient to cause them to require medical help. When these are given effective medication they experience gratifying freedom from harassing symptoms. To us, premenstrual tension appears as a real problem which not uncommonly causes severe distress. This complex deserves greater recognition than is now accorded it.

It cannot be denied that premenstrual tension is unlike severe dysmenorrhea. It constitutes a vexing rather than incapacitating problem. Subjects with premenstrual tension are seldom bedridden. Its ravages are reflected primarily in impairment of efficiency and in the disturbances in the harmony of interpersonal relationships. The impact created by some of the physical phenomena that accompany premenstrual tension can hardly be depreciated. For the well-dressed and public-minded woman periodic weight gains up to eight pounds which occur during the last week of the cycle must be recognized as a true source of distress. Premenstrual exacerbations of acne and other skin blemishes can hardly be expected to be without effect on the personality of the individuals who experience these.

In all probability the greatest toll taken by premenstrual tension results from the nervous and mental symptoms, especially when these are severe. Obviously the woman with premenstrual migraine, irritability, insomnia, depression and other mental disturbances can-

not be expected to function efficiently in her role as a member of the family, or in her relations with her associates in the social and business worlds. Disharmony at home, antagonism among friends and inefficiency in industry inevitably result from such disturbances. In the milder cases the damage may not be disastrous. However, an increasing amount of evidence indicates that many domestic tragedies may be attributed in part to the effects of premenstrual tension. It has been estimated that the industrial inefficiency resultant from premenstrual tension produces a great annual loss, since approximately 36% of women employees need support in the premenstrual week.[1] Many unpremeditated criminal acts performed by women occur during the premenstrual phase of their cycles.[23] These and other facts render it increasingly clear that premenstrual tension can hardly be assigned to a minor role among the disturbances which accompany menstruation.

Yet too many physicians are inclined to dismiss their importance because the symptoms are seldom incapacitating, and thus deny the patient specific treatment. Undoubtedly such an attitude springs from the failure to evaluate properly the end results of uncontrolled premenstrual tension. Frequently sight is lost of the fact that the subject herself may be unaware of the extent of the impact of her disturbances on others. Too often her difficulties are attributed to imaginary antagonism of her associates. To label these acts and complaints as neurotic or hypochondriacal is a serious error in judgment of the physician, and this may lead to disaster.

The very multiplicity of theories advanced as the cause of premenstrual tension has inevitably led to the advocacy of numerous forms of treatment. Many have been designed to treat the alleged specific cause. Thus, progesterone,[9, 10, 13] chorionic gonadotropin[13, 22] and testosterone[9, 11, 22] have been used with varying success to combat supposed hyperestrogenemia. Frank[7] used epsom salts to accelerate faulty estrogen excretion. Biskind[2] reported successful results from the administration of large amounts of thiamin, a concept based on the unproven (in human) role of this vitamin in the hepatic inactivation of estrogens. Furthermore, evidence of thiamin deficiency has not been demonstrated in uncomplicated premenstrual tension. Zondek[26] based his treatment on attempted desensitization of an allergy to estrogens. Endocrine therapy of premenstrual tension has not proven sufficiently successful to warrant its routine use. Side effects and cost are sufficient to exclude them from consideration except in rare instances.

Despite differences of opinion as to the basic derangement, many investigators believe that the major symptoms are due to water retention. We are convinced that water retention plays a prominent role, even in the absence of visible edema or significant weight fluctuations, since individual organs or systems may become turgid and symptomatic following localized retention of small amounts of fluid. Greenhill and Freed[12] first advocated ammonium chloride as a diuretic for the treatment of premenstrual tension. Many others have subsequently used this and other diuretic agents with satisfying success. Various purines[16] with or without antihistamines,[15] and mercurials[18] have also been recommended. We find some degree of undesirable sedation from the antihistamines. Most mercurials are safe,

but sensitivity and idiosyncrasy have been encountered when least expected. A carbonic anhydrase inhibitor (Diamox) and the ion-exchange resins have recently been recommended. The latter have shown little value, whereas the former is excellent for short term therapy. It may have noxious effects after prolonged use, and is ineffective with or shortly after the use of ammonium chloride, but may be used with mercurials.

Thus ammonium chloride and the purine group are the safest diuretics for routine and relatively continuous use, which at times is unsupervised. A measure of salt restriction should be combined in an effort to augment the effectiveness of the diuretic therapy.

In addition to the basic therapy, a number of drugs have been used for their non-specific activities in individual cases. These do not lend themselves to general therapy. Among these may be listed the antispasmodics, sedatives and analgesics, mood elevators as amphetamine, tranquilizing agents as those of the Rauwolfia group, mephenesin, etc. The newer synthetic ergot alkaloids with or without antispasmodics may have a salutory effect through the autonomic nervous system. All of these drugs relieve particular symptoms by affecting and modifying the response of the higher centers to the specific disturbances. In many instances, the use of these actually cause interference with the patient's daily routine, yet fail to treat the primary condition.

The very number of products recommended for the treatment of premenstrual tension constitutes the most cogent evidence that few of these provide adequate relief. In many instances the failure may be due to the undesirable side effects associated with the use of these drugs. In other instances, particularly when the rationale of therapy is based on a unitarian concept of etiology of premenstrual tension, the poor results indicate that the proposed etiology may not be the sole explanation of the cause of this condition.

Recently we have attempted to evaluate a product designed to provide a multidimensional approach to the treatment of premenstrual tension. According to this concept, a combination of drugs, each of which is effective in providing relief from one or more of the symptoms of premenstrual tension, would be expected to yield better results than any of the individual components. The pharmacologic effects from the use of this product are revealed by its formula.

Each tablet contains:	
ammonium chloride	5.0 gr.
homatropine methylbromide	0.5 mg.
caffeine alkaloid	0.5 gr.
thiamin hydrochloride (vitamin B_1)	2.0 mg.
riboflavin (vitamin B_2)	1.0 mg.
pyridoxine hydrochloride (vitamin B_6)	0.5 mg.
calcium pantothenate	1.0 mg.
niacinamide	5.0 mg.

Ammonium chloride provides the diuretic effect, while caffeine acts as a mild stimulant in overcoming depression. Homatropine methylbromide, an excellent antispasmodic, is used to relieve some of the effects of autonomic imbalance associated with premenstrual tension. Thiamin hydrochloride is included along with the other vitamin B factors to increase the rate of protein utilization, and to overcome the hypoglycemia described as a prominent disturbance in these patients.[20, 28] It may

have the accessory action of assisting the liver to "inactivate" estrogen.

This product has already been studied by others for its effectiveness in premenstrual tension, and considerable success has been reported from its use.[20, 21] The recommended schedule is two tablets three times daily after meals for each of the ten days preceding the next expected menses. A low sodium, high protein diet is advocated as adjuvant therapy.

Our own experiences may be summarized briefly: gastric distress at the recommended dosage level of ammonium chloride has been minimal, undoubtedly the result of a satisfactory enteric coating on each tablet. Bowel upsets such as loose stools or indigestion have been infrequent. Mydriasis and xerostomia from the homatropine methylbromide have never occurred to any significant degree, although bowel sedation has been a prominent factor in the relief of some of the patients. The stimulant action of caffeine has been negligible, but this drug may contribute to the over-all diuretic effectiveness of the entire medication. The B complex vitamins are present in about the same ratio as any good maintenance or slightly therapeutic dietary supplement. It has not been possible thus far to assess the degree to which they contribute to the medication's value, although anorexia is not a problem in the successfully treated patients.

In the 87 private patients in whom we used this drug, none has discarded it because of adverse side effects since the relief obtained was sufficiently gratifying to more than compensate for any discomfort caused by the treatment. It was surprising that several patients who experienced relief of their major complaint while taking the medication became aware for the first time of other discomfiting conditions associated with menses. These were frequently relieved merely by adequate explanations. Patients with emotional dysmenorrhea were not relieved. Approximately half of the patients with associated complaints suggestive of the pelvic congestion syndrome[29, 30, 31] were completely relieved. None was made worse. The symptomatic relief afforded those patients who combined the tablet with the high protein diet was found to be marked when the tension complaints were associated with "nerves". Of the original group of 87 patients, 31 are still taking the prescribed tablet regularly each month with no apparent diminution in their response. Effects are not as good in those with extreme irregularity of the menstrual cycle, since ammonium chloride loses its diuretic effect if taken for a prolonged and continuous period. Seven to ten days is the upper limit of satisfactory diuretic activity. In this group treatment starts with the onset of symptoms, and there is, therefore, a lag in the response. In the entire series the tablets have been most acceptable to those patients who have expressed themselves as very pleased with the results.

Considering previous and current experiences, we believe that the patient as described above, the one with overt or covert water retention complicated by nervous system disturbances, should not be treated by hormones, sedatives or analgesics as these are seldom indicated or completely effective. Some of the newer tranquilizing agents may be of value, but confirmation of this value still awaits adequate study. For the present, we can confirm the recommen-

dation of others that this tablet* is the agent of choice as a safe and effective treatment for the routine patient with premenstrual tension.

* PRE-MENS. The Purdue Frederick Company, New York, New York.

Summary and Conclusions

1. Literature pertaining to the nature, cause, effects and treatment of premenstrual tension has been briefly reviewed.

2. Premenstrual tension is incapacitating only when considered from the viewpoint of its most acute manifestations. But in light of the end results of its impact on the subject and her associates in all phases of living, its effects are far reaching, and it may constitute one of the more serious disorders which complicate the menstrual cycle. Its frequency is greater than is generally recognized. It deserves the benefit of effective treatment.

3. The psychologic aberrations of premenstrual tension are not symptoms of a psychoneurosis, but probably the end result of a localized water retention in the higher centers of the brain. As such, medical treatment is indicated.

4. The use of hormones, analgesics, mood elevators, tranquilizers and other forms of symptomatic treatment is discussed. It is concluded that none is sufficiently effective or safe for routine use in the treatment of premenstrual tension.

5. The use of various diuretic agents is discussed, and the advantages of ammonium chloride and caffeine are presented.

6. The use of the drug, premens, based on a concept of a multifaceted approach to therapy, has been evaluated in 87 private patients. The results have demonstrated that this medication provides effective relief with minimal side effects. It is concluded that pre-mens is the drug of choice for routine administration to patients who have premenstrual tension.

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AN EXERCISE IN DIAGNOSIS— THE CASE REPORTS

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Nodular Goiter

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Ample evidence has established the relationship between nodular goiter and malignant disease in recent years. In the past, it has been generally believed that thyroid cancer originated from a pre-existing benign adenoma. However, more recent investigation suggests that many nodules may be malignant from their onset, and thus not all thyroid cancers arise from pre-existing benign thyroid adenomas.

Various authors have reported an incidence of malignancy varying from 10% to 24% in discrete nodules. Both Cole[1] and Crile[2] found malignancy in 24% of discrete nodules; Ward[3] found malignancy in 15%; and Lahey and Hare[4] found it in 10% of discrete nodules. Pemberton[5] reported an incidence of malignancy of 33% in children less than 14 years of age. The chance of finding carcinoma in solitary nodules is undoubtedly considerably greater than in the multiple nodular types.

Hyperthyroidism greatly lessens the likelihood of carcinoma in adenomatous goiter. Black[6] found an incidence of less than 1% in cases of adenomatous goiter with hyperthyroidism and less than 0.5% in cases of exophthalmic goiter. The minute malignant papillary lesions found in association with exophthalmic goiter are probably of little clinical importance. If radioactive iodine is contemplated in the treatment of exophthalmic goiter, this incidence should be considered.

If there is such a dangerously high incidence of carcinoma in adenomas of the thyroid, why then, have many physicians advised their patients to postpone the surgical excision of these thyroid nodules until pain, hyperactivity, increase in size, or pressure symptoms develop?

There are several explanations for this. Many physicians, who are but superficially interested in the subject of thyroid adenomas, have been oblivious to the high incidence of malignant disease in adenomas. In some regions of the United States, patients with nodular disease of the thyroid gland are rarely observed. In other areas where nodular goiters are frequent, there has been a tendency on the part of many physicians, in the past, to ignore them unless they became toxic, unsightly, or caused pressure symptoms. In recent years the considerable publicity which has been given to the subject has resulted in the removal of adenomas or malignancies at an earlier date.

Adenomas may occur either as single

or multiple nodules. It is true that even among experienced surgeons every discrete nodule that is palpated and considered as a probable thyroid adenoma will not prove to be a true tumor or be classified as an adenoma by the pathologist. Frequently, areas of thyroiditis, or isolated areas of degenerated colloid goiter, which are not true tumors, will be impossible to distinguish from adenomas on inspection and palpation of the neck. However, a surgeon experienced in evaluating neck tumors will predetermine a reasonable percentage of adenomas.

At operation, there are certain characteristics which suggest the discrete adenomatous nodule to be a true tumor or adenoma. The presence of a definite capsule, often thickened, suggests an adenoma. Adenomatous tissue within the capsule usually has a homogenous texture and differs from the normal gland outside the capsule. The surrounding thyroid tissue frequently appears compressed from the presence of the adenoma. A capsule is ordinarily lacking in the nodules due to a colloid adenomatous change. These latter are usually multiple, and may occur in one or both lobes of the thyroid. The tissue in such a nodule is not homogeneous and may be partially necrotic. Complete thyroid differentiation usually persists in a colloid adenomatous goiter, even if advanced degrees of degeneration are present.

Because such a high percentage of thyroid nodules are adenomas, and because of such a high percentage of malignancy in adenomas, all thyroid nodules should be removed without delay. The discrete nodule in the thyroid gland may already be a malignant tumor.

The development of low grade hyperthyroidism in a nodular goiter with resultant liver and myocardial damage is an additional argument in favor of excision. It is estimated that approximately 35% of thyroid adenomas become toxic during the patient's lifetime. Frequently, such mild hyperthyroidism is recognized only when the patient develops fibrillation, or experiences cardiac decompensation. Treatment then is much more difficult and is fraught with some danger.

Some patients who have hyperthyroidism due to a toxic nodular goiter are quite difficult to prepare for surgery. Occasionally they exhibit considerable resistance to both iodine and the anti-thyroid drugs usually effective in lowering the elevated basal rate. Radioactive iodine ordinarily is contraindicated in the control of such hyperthyroidism. Thyroidectomy, thus, must be carried out on a poorer risk patient.

The question may be asked whether we are able by inspection and palpation of a discrete thyroid nodule to determine the presence or absence of malignancy prior to operation. It is the experience of most thyroid surgeons that such malignancy frequently cannot be detected, particularly in the smaller nodules. Fixation to surrounding structures, firmness, and loss of outline of the tumor are late findings of malignant disease. However, these palpatory findings of a thyroid nodule are not infrequently due to previous hemorrhage within a thyroid adenoma, which can produce a marked degree of fixation of the adenoma to the adjacent tissue. At the time of operation other than for those previously mentioned characteristics, it is usually impossible to determine malignancy in its earliest stages.

It is somewhat controversial whether

excision of a benign adenoma or subtotal thyroidectomy should be performed. Either procedure is acceptable if the adenoma is benign. The presence of malignancy necessitates either lobectomy or total thyroidectomy depending upon the presence of malignancy in one or both lobes.

Although it is possible to perform a lobectomy or total thyroidectomy after the neck wound is healed, it is technically much easier and more satisfactory to carry out this definitive surgery at the time of the original operation. Therefore, in all cases, it is most desirable that the thyroid specimen be examined by frozen section at the time of the original surgery. Then the indicated procedure can be performed and if necessary, a radical neck dissection can also be carried out.

The indications for radical neck dissection are fairly well established. Radical neck dissection on the affected part should be performed in all cases of carcinoma which arise from discrete adenomas that have eroded the capsule of the adenoma and involved the parenchyma of the thyroid on the affected side. The procedure should be done for malignant changes of grade II and grade III in discrete adenomas, even if such lesions have not invaded the capsule. Radical neck dissection should also be performed even in the presence of early carcinoma within discrete adenomas if there is blood vessel or lymphatic invasion outside the adenoma. It is probably not indicated for those patients who have small papillary lesions confined to the thyroid gland without obvious lymph node involvement. In some cases of papillary carcinoma, lobectomy and a limited neck dissection may be performed.

Cattell[7] believes that radical neck dissection should be followed in all cases by x-ray therapy, except in those cases performed for papillary carcinoma of the thyroid.

In recent years, modern operative and radiation techniques have salvaged an increasing number of patients whose condition formerly would have been considered hopeless. At present, it is rather unique to find a patient with such advanced cancer of the thyroid that radical surgery combined with radiation therapy is not justifiable.

Radioactive iodine has been used in tracer doses prior to surgery for suspiciously malignant thyroid nodules. If such a lesion proves malignant, autoradiograms may be made from thin tissue slices and one is thus able to obtain an estimate of the iodine uptake of the malignant lesion. About one thyroid carcinoma in six can be made to take up enough radioactive iodine to make the administration of curative doses of radioactive iodine feasible in patients who are too far advanced for surgical cure.

Summary

1. All discrete thyroid nodules should be removed surgically without delay unless there is some serious contraindication.

2. A high percentage of discrete thyroid nodules are adenomas.

3. Approximately 10 to 24% of adenomas of the thyroid gland are malignant.

4. Certain thyroid nodules may

be malignant from their onset and early operation is essential for diagnosis and for definitive treatment.

5. Approximately one third of solitary thyroid nodules in children are malignant.

6. Removal of thyroid nodules is good prophylaxis against the development of toxic nodular goiter later in life.

7. Frozen section study of thyroid tissue at the time of surgery is most desirable.

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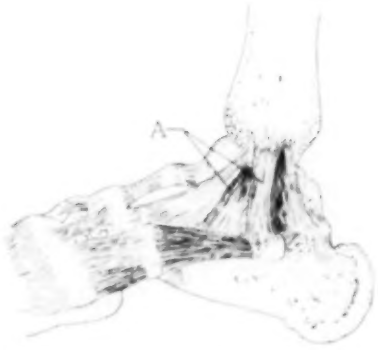
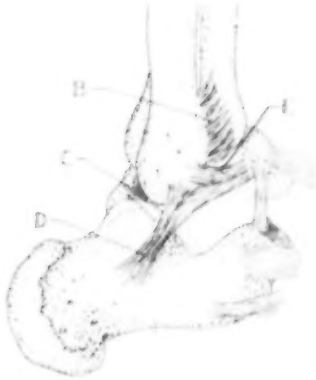
317 West Berry Street

Clini-Clipping



Medial View of Ankle showing Deltoid (Internal Lateral) Ligament (A).



Lateral View of Ankle showing Anterior Inferior Tibio-Fibular Ligament (B), and the External Lateral Ligament composed of Posterior Talo-Fibular Ligament (C), Calcaneo-Fibular Ligament (D), and Anterior Talo-Fibular Ligament (E).

Nursing Care in Cerebrovascular Accidents

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Good nursing care is one of the most important elements in survival of a hemiplegic victim and in increased extent of recovery. Without good nursing care it is impossible to treat a stroke patient. During the acute phase attention must be paid to so many vital details—clear airway, oxygenation, medications, support of paralyzed extremities, care of skin, bowel and bladder, fluid, electrolyte and protein balance, diet, massage, manipulations, and hydrotherapy.

Airway and Pulmonary Congestion: Excessive mucus production with cardio-respiratory depression and impaired cough reflex produce throat and pulmonary congestion. This is aggravated by over-sedation, over-hydration and immobilization.

If the patient is conscious, slow, deep breathing should be encouraged. Frequent change of position with turning onto abdomen or side for fifteen minutes every two hours is helpful. Elevation of the head of the bed on two inch blocks and repeated inhalations of 50% oxygen with 5% carbon dioxide bubbled through 95% alcohol or some wetting agent should be routine for all cardio-respiratory depressions. A good positive pressure machine with sudden decompression may prove life-saving.

Suction, steam inhalations, and atropine-type medications are only of slight and transitory benefit. Long-acting antihistamines show more promise. Aminophylline and morphine sulfate may increase coronary and pulmonary blood flow but decrease cerebral blood flow. Cervical sympathetic blocks[1] and slow drip intravenous hypertonic glucose (5-10%) in distilled water with dilute Novocain (c.1-0.2%) and intermittent papaverine HCl (Gr. 1) or concentrated serum albumin do help relieve pulmonary[4] and cerebral congestion.

Bowel: Incontinence is difficult to treat. Harris drip or low tap water enemas administered at the same time every day help the re-establishment of some control. It is just as important to avoid constipation and fecal impaction. Straining on the bedpan can result in further cerebral damage. Mild laxatives or suppositories may be necessary.

Bladder: Usually bowel control is regained sooner than bladder control. Retention catheters should be removed after a few days. If the patient has not regained control, the catheter can then be re-inserted. Irrigations of the blad-

der with antiseptics have diminished in popularity; the catheter can be kept clear with isotonic saline.

Pressure Sores: Avoiding decubitus ulcers by keeping the bed clean and dry, and the sheets unwrinkled is more important than the best ointment. Frequent turning of the patient along with improving ventilation prevents prolonged pressure over susceptible areas. Skin tone and nutrition must be maintained by proper diets, manipulations, massage and hydrotherapy[6,7]. Even with proteolytic enzymes and antibiotics the healing of ulcers is still a discouraging proposition.[8]

Stimulants: Shock, circulatory and respiratory collapse accompanying severe CVA require vigorous treatment before irreversible brain damage occurs. Supportive cardiac therapy, careful transfusions with blood, plasma or concentrated albumin, vasopressors and other agents for improving cerebral circulation should be considered (papaverine, niacin, metrazol, nalline, picrotoxin). The protective action of hypothermia by reducing tissue oxygen demand merits investigation.

Intra-carotid artery vasodilators and prolonged cervical sympathetic blocks are recommended.[1,2] A long-acting agent can be used; if the patient is not receiving anticoagulants injections are repeated every few days at increasing intervals. Another routine is the insertion of a fine polythene tubing to the region of the middle cervical sympathetic ganglion. The nurses then inject into the tubing every two hours 2.0 cc. Novocain (0.5–1.0%) or some other short-acting anesthetic. The family should be told about the Horner's syndrome; prevention of infection and Novocain reactions should be kept in mind.

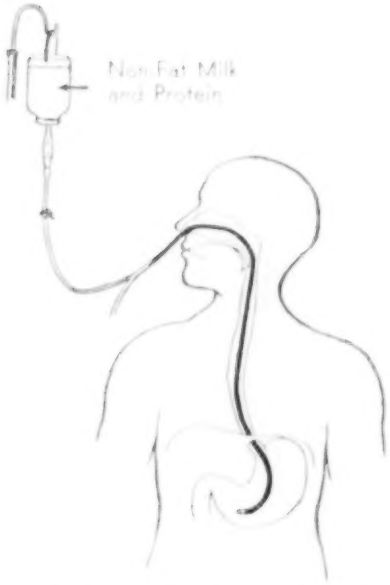

Fig. 1. Nasogastric tube for feeding comatose CVA patients.

Sedation: There is danger of cardio-respiratory depression[4] from overdosage with hypnotics and sedatives in the attempt to overcome restlessness. Less sedation will be required if the cause of the restlessness is removed. Abdominal distention from full bowel or bladder, and wet sheets are common sleep-disturbing factors.

A half ounce of brandy (cognac or vodka) four times a day is an effective sedative and may improve cerebral circulation. Opiates should be avoided. Antihistamines, barbiturates or chloral hydrate in small doses by mouth or suppository, repeated as necessary, are preferred to large single doses. The dihydrogenated ergots or rauwolfia derivatives administered to hypertensives have a tranquilizing effect. There is no

ideal method for handling confused stroke patients and preventing falling out of bed. Low beds may be preferable to restraints or side boards.

Analgesics: For extremity pains, salicylates, hydrocortone, autonomic blocking agents,[7,9] can be tried. Tolserol, neostigmine, curare-like medications and other "relaxants" are of transitory benefit. Phenylbutazone should be used with caution—close check on the blood picture. *Mild* counter-irritants, analgesic vasodilator ointments, ethyl chloride sprays or local injection of Novocain with hydrocortone and hyaluronidase into trigger points may be effective. This author favors intravenous 0.2% Novocain and prolonged or continuous sympathetic nerve blocks for disabilities or severe pains of the upper or lower extremity.[3] Chlorpromazine and antihistamines may be useful for pain relief.

Fig. 2. Slow intravenous drip

Other Medications: Penicillin or other antibiotics must be administered during the acute phase to help prevent hypostatic pneumonia and genito-urinary complications. Antibiotics are also required if a polythene tubing has been inserted for prolonged sympathetic blocks.[1,3]

Drugs for increasing cerebral blood flow and vitamins (B_{12}, B complex, ascorbic acid, niacin) are of secondary importance. Cortisone[10] may help resolution of cerebral damage, reduce fibrosis and reduce extremity pains. With cortico-steroid therapy in cerebral infarction the risk of hemorrhage should be considered. Androgens and estrogens help reduce protein loss and improve muscle tone.

For mental depression cortico-steroids,[10] amphetamines and estrogens or androgens should be tried. The psychomotor stimulation may promote interest and cooperation in the retraining program. Betaine-glycosyamine may prove useful in neuro-muscular rehabilitation. Anticoagulants are discussed elsewhere. The claims made for heparin and the lipotropes in arresting atherosclerosis and preventing further CVA's have yet to be confirmed.[7]

Diet: Comatose patients or those with swallowing difficulties should be fed through a nasogastric tube with a solution of non-fat milk and protein. Once or twice daily a slow drip intravenous of 500 cc. 5% or 10% glucose in distilled water may be administered. The patient is thus provided with ade-

quate fluids, electrolytes, proteins and calories. As soon as possible the patient should begin eating a light diet in small meals. Increased protein intake with supplemental B complex and ascorbic acid help maintain tissue tone, aid repair and help prevent pressure sores. In the obese patient, circulation will be improved by weight reduction. This is the time for help from the dietitian in indoctrinating the family in the high protein low calory diet—low in carbohydrate and moderately low in fat.[5, 11] For the hypertensive sodium restriction is important.

Good nursing care calls for optimistic persistence, hard work and attention to many small details.

Summary

1. A great deal can be done for hemiplegic victims in increasing survival, preventing complications and improving rehabilitation.

2. Good nursing care is the first essential.

3. Anticoagulants, cerebral vasodilators, stimulants, analeptics, analgesics, and cortico-steroids can be of great benefit.

4. Prolonged cervical sympathetic blocks merit further clinical and laboratory study.

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Ultrasonics
In General Practice

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As a G.P. my interest in physical therapy was aroused approximately 15 years ago when my wife sprained an ankle and came to me for my advice. My advice was to soak it in hot water or apply cold applications, whichever made it feel better. Her indignant reply was, "That was something Grandma could have told me. Is this the extent of medical knowledge today concerning sprained ankles?" It dawned upon me then that patients come to doctors expecting to receive a service which is not obtainable elsewhere. If the doctor fails to render such a service, *the reason for his existence is gone.*

So, with this fact in mind, I became more and more interested in physical appliances which would enable me to render my patients a better service. That physical medicine now holds a prominent place in general practice cannot be denied, and yet the number of practitioners who refuse to avail themselves of such excellent healing devices for one reason or another, is still too great to provide patients with adequate service.

Because of the recent appearance of articles adversely criticizing the youth of ultrasonics, I feel that my experiences with ultrasonics in general practice may help others to properly evaluate its place in the field of physical medicine today.[1-3] To one who has had no experience with ultrasonics, this adverse criticism would lead him to be wary of employing a device which may produce conditions hazardous to the human body.

To one interested in ultrasonics, it becomes apparent that the dosages used in the reports far exceed the maximum limits recommended by manufacturers and the maximum limits which the ultrasonic machines now marketed are capable of delivering. These warnings are reminiscent of the papers which appeared when longwave, then shortwave, and more recently microwave therapy was introduced. Theoretical hazards were introduced which never came to pass, and it is generally conceded now that any physical therapy which is rendered in the prescribed dosages with the manufacturers' cautions observed, are not detrimental to the human body.[3,4]

It must be realized that in the present day, no manufacturer of therapeutic apparatus can afford to stick his neck out and possibly ruin a reputation which has been years in the making. This situation may not be true with

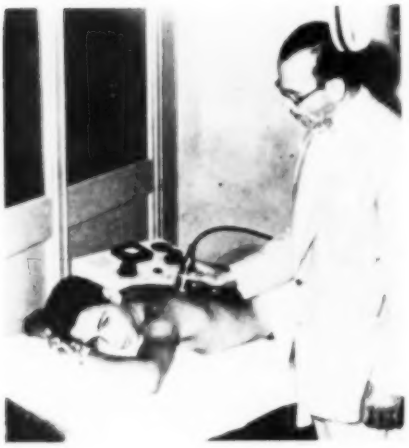

Fig. 1. Application of ultrasonics to the paravertebral area for bronchial asthma.

fly-by-night firms, but the majority of therapeutic apparatus is made by houses which are reputable and have been in existence for many years and market apparatus only after its therapeutic possibilities have been observed. One may rely on the fact that the manufacturer who has gone to the expense and trouble of gaining Underwriters' Laboratory seal of approval and Federal Communications Commission type approval license and is otherwise a long established reputable firm, is presenting a therapeutically meritorious device. Safety is inherently built into these machines and it is only through carelessness and ignorance that a hazard could occur.

My experience started with shortwave apparatus and has continued with an interest in ultraviolet, microthermy and lately, ultrasonics. The history of ultrasonics is sufficiently interesting to be reviewed briefly. In Central Europe and Germany ultrasonics was used experimentally about 1927. The Second World War saw a decline in the experimental use but a new impetus arose after the peace, and despite the mounting interest in use in Europe, in America our physicians were slow to accept it as a possible therapeutic aid, despite the spectacular reports which came from Europe. In 1951, experimental work was begun in 25 universities and clinics in an effort to determine whether the enthusiasm was warranted. The general consensus of opinion today is that ultrasonics is a valid therapy.[1-3] In certain uses the results are outstanding.[4-6]

It may be well to review briefly the theory of ultrasonics. Ultrasonics and ultrasound mean the same. It is a physical soundwave propagated at a rate higher than what the human ear is capable of receiving. It is the same soundwave that is found in whistles used for calling dogs silently. The soundwaves are too high for the human ear to hear but are capable of being received by the dog's ear.

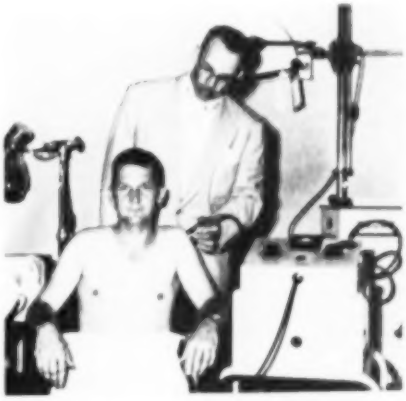

Fig. 2. Application for bursitis. The transducer or head is kept in motion through the coupling medium (mineral oil).

When a bell is struck, the vibration pushes out sound waves which are followed by a suction wave. As this sound, or pressure wave hits the ear drum, the ear drum vibrates according to the magnitude and velocity of the alternate sound and vacuum waves. These vibrations of the ear drum are transmitted to the brain where they are "heard." Since sound waves are vibratory, they may be high or low, or loud or soft. Ultrasound is the name given to waves having a frequency of more than 20,000 oscillations per second. The ultrasonic waves in most therapeutic generators are one million oscillations per second, but because of this exceedingly high frequency, they will not travel through air at all, and a coupling medium must be used. This may be mineral oil or water. The method of generation of these waves is not of concern in this paper, but the strength of the vibrations may be increased or decreased, depending upon the strength of the electrical current fed to the vibrating mechanism. The maximum current is controlled by the surface of the emitting head and by the limit to which the current can be increased. These two safety factors are built into the machine so that dangerous quantities cannot be accidentally distributed. Up to 3 watts per square centimeter of transducer are considered very safe within therapeutic dosage.

There is no question but what ultrasonic waves are potentially dangerous if the quantity is too great, or there is *too much* intensity.[1,2] The matter of too much is controlled by the limitations which are built into the machine. The matter of *too intense* is best determined by the patient. The general consensus of opinion is that there should be no pain or discomfort during treatments.[3,4] Too great an intensity will result in a burning, tingling, or cramplike pain, but if the sound head is kept in motion, the discomfort will not appear, or if present, a reduction in power will cause a disappearance of these symptoms. It has yet to be shown in clinical use that ultrasonics has produced any detrimental results.

Fig. 3. April 1955. Hypertrophic arthritis of cervical, thoracic and lumbar vertebrae. Nose-floor distance, 41 inches.

There is a tendency among theoretical scientists and clinicians to refuse to use a new modality until the reasons for its effect are known.[10] This has led to many theories as to how ultrasonics works. The same trend was present with diathermy and microthermy, and even in new medications, but more

clinically-minded investigators were not interested in how it worked so long as it did work. Some investigators claimed the results to be entirely mechanical, others feel that the heat production is the effective agent, and others explain it on a chemical basis and somewhere in all three of these may lie the correct answer, although at this time, the effect is not definitely known.[5-11]

Our purpose in acquiring an ultrasonic unit was an attempt to benefit those conditions which had not been helped materially or consistently by shortwave, microthermy or hydrotherapy, and no attempt was made to treat those conditions which could be helped by other methods. For one year this was our purpose.

During this year we saw 6 cases of bursitis, 4 of which were benefited by ultra shortwave, or microthermy, and two which were not responsive. Both of these refractive cases were subjected to ultrasonics in the recommended dosage with complete resolution of symptoms, and on one follow-up x-ray, the calcium deposits had disappeared.

Three cases of osteo-arthritis were sonated, all of which responded beautifully so far as the pain symptoms were concerned. In two cases where the deformity had become fixed, there was only slight return of function, but *complete relief of pain.*

We treated four cases of hypertrophic arthritis of the spine, with relief of pain in three of them, and a marked increase in motion, as measured by the nose to floor test.

Treatment of two varicose ulcers, one of 22 years' standing and one of 3 years' standing resulted in complete healing.

One case of peripheral vascular disease in which the toes had been amputated, had resulted in an unhealed ulcer of 4 years' duration, despite intensive treatment. This cleared completely.

Six cases of asthma which responded poorly to routine therapy were treated, with complete satisfaction, including one patient who, for 3 previous winters, developed a cough followed by asthma, and had spent one to four weeks each winter in various hospitals. Her rapid response was most gratifying. One case with a diagnosis of asthma responded poorly, but further studies revealed that bronchiectasis was also present.

We had two cases of herpes zoster, one of which improved; the other re-

Fig. 4. June 1955. Same case after sonation 2-3 times weekly for 9 weeks. Nose-floor distance, 37 inches. (Camera angle makes it look closer to 36 inches.)

quired additional medication. One case of multiple sclerosis was treated without response.

The technique of operating an ultrasonic unit is quite simple and the actual time involved for the physician is between 5 and 10 minutes, exclusive of the dressing and undressing time. At first reading it may seem silly to present such a small series of cases, but it *must not be forgotten* that these are *individuals who failed to respond to other means of physical therapy*. They represent a group of patients *who might otherwise not have found relief*. It is also recognized that these individuals may be subject to periodic remissions based on season and emotion, but at the same time, the question arises *why did they not respond to other techniques?*

Conclusion

One year's experience in ultrasonics in the field of general practice has resulted in gratifying improvement in these conditions which failed to respond to other modalities. For a general practitioner interested in the field of physical medicine, the use of ultrasonic energy may provide him with a means of rendering better and more efficient service, gratifying to himself and his patient.

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Why Cancer Victims Should Be Told the Truth

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When asked the question, "Would you like to be told if it were found that you had cancer?" a 34-year-old business man and a 50-year-old professional lady said: "I would want to know in order to better understand my illness. It is the unknown which frightens people the most." I would want to be told in order "to relieve the torturing suspicion and fear. Knowing my condition I can seek means for a possible cure. If incurable, I shall muster courage to prepare myself for the inevitable." A 39-year-old business man, a 29 and a 61-year-old laboring man answered the same question with: "The shock of knowing wears off quicker than the uncertainty of continual worry and wonder." "Who wants to be misled? . . . a person pays for a doctor's services just the same as one pays for a piece of merchandise—why misrepresent in either case? It does not pay." "I would like to know what I am doctoring and spending hard earned money for."

Approximately two years ago I completed a survey in an attempt to find out what the patient's desires were concerning this question.* I sent the questionnaire reproduced here to approximately 1000 individuals. After a reasonable length of time I received 477 replies. From analysis of these replies certain conclusions were drawn. #1. The patient should be told the truth if his doctor has found that he is afflicted with cancer. #2. It is rare that one can fool a patient into believing he does not have cancer when he actually does. #3. The doctor, preferably the family physician, is the one person who should either tell or have a big part in telling the patient the diagnosis of cancer. Exceptions will be noted later.

The people who answered the questionnaire were all of the white race, ranged in age from 13 to 90, 251 were females and 226 were males. The Protestant (including 23 Amish and 2 Christian Scientists), the Catholic, and the Jewish religion were all represented. The occupations represented were farmers, laborers, domestics, business and professional men and women, and col-

* "Should Patients be Told When the Diagnosis is Cancer?" The Journal of the Indiana State Medical Association, April 1953.

CANCER QUESTIONNAIRE

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A doctor faces a difficult problem when he discovers cancer in one of his patients. Should he tell the patient? Or should he try to make the patient believe that no cancer exists? Opinions among doctors differ and certainly opinions among patients must also differ as to the best procedure to follow.

To my knowledge there has never been an extensive patient survey made as to what the individual desires might be with reference to one's personal knowledge of cancer. I am attempting to make such a survey and believe with your honest answers these problems may be more intelligently faced by your doctor and yourself. Please do not consider the questions in any way related to any condition that you may be under treatment for at the present time. This is intended to be an impartial general survey. Please consider the questions carefully and give your own personal feelings toward this subject.

It would be helpful and interesting to know if opinions differ as to age groups, sex, occupations, and religion; therefore, I am asking you to fill in the blanks accordingly.

Age ..... Sex ..... Occupation ..... Religion .....

1. If your doctor discovered that you had cancer, would you like to be told about it?

Yes ..... No .....

Why .....

2. If your doctor discovered your wife, husband, father, mother or other close relative had cancer would you like for them to be told?

Yes ..... No .....

Why .....

3. Do you think it possible completely to fool the patient with cancer by telling him he does not have cancer?

Yes ..... No .....

Why .....

4. Who do you think should tell the patient he has cancer? The doctor ..... The minister ..... Close Relative .....

Why .....

Thank you very kindly for your answers. I assure you that individual answers will be kept confidential, but will be studied carefully as a group.

You may or may not put down your signature. It is completely voluntary. If you do not put down your signature, please be sure that the questions with regard to age, sex, occupation, and religion are answered.

Signature .....

Sincerely yours,
Otis R. Bowen, M.D.

lege students. There was no correlation at all between the answers received and occupations or religion. A few of the pertinent results with reference to the various questions asked are listed below.

1. 96.6% of all persons surveyed desired to know if they had cancer.

2. 99.1% of all individuals surveyed between the ages of 13 and 35 (which represents 43% of those who answered the questionnaire) desired the truth while of the group between 66 and 90 years of age, only 92.5% desired to be told if they had cancer. This may indicate that the younger group preferred the total truth concerning their condition more than the older group.

3. There was a slightly higher percentage of men that desired the truth than women.

4. 88.6% of all persons surveyed desired that their close relative be informed if they were afflicted with cancer. It is interesting to note that fewer people had a definite opinion on this question than on the first question (94.3% had a definite opinion on this question in contrast to 99.3% with a definite opinion when the answer pertained to themselves).

5. Only 12.3% of the patients surveyed felt that patients could be fooled. Fewer women than men felt that a cancer patient could be fooled into thinking that he did not have cancer. The age group of 36-50 represents the most suspicious age group.

6. 95.9% (93.6% males and 97.9% females) of all those who expressed an opinion stated the doctor should at least be one of the informers.

7. 1.5% stated that they preferred their minister to be the informer, while 2.4% chose their preference as a close relative. 2.6% preferred a combination of their doctor, minister and 3.1% preferred a combination of close relative and their doctor. No one chose a combination of close relative and minister.

8. According to age group and sex it was found that the age group 13 to 35 seemed to look to their doctor with trust and confidence in this matter more than any age group and that those 36 to 50 showed less tendency to trust their physician in this matter than any other age group.

From reasons given for their answers to the questions, I believe we can develop the medical and moral soundness of informing the patient of the true diagnosis. The patients' comments revealed that they had given the questions much thought before answering. The answers given regardless of whether they were yes or no, expressed many different ideas. Some were emotional, expressing the idea of fear and worry; others were financial, expressing the idea that it was strictly a business proposition with them; some were moral and expressed the hope or demand for the truth; some were with thoughts of the future, expressing a determination for cure, thoughts of their family, religious preparation for death and the arrangement of personal affairs for any eventuality; some expressed the idea of an educational nature and revealed that they thought there should be more education received along these lines or expressed an opinion of the value of the education already received; and finally numerous individuals expressed the importance of the highly intangible patient-doctor-minister-family relationship. Some typical answers and very quotable comments from patients with reference to their answers to the four questions are given below.

A 53-year-old business man stated, "I think I would know it or be so suspicious of it that the doubt would be more harmful than definite knowledge. If I felt I were being misled, I think I would lose some of my confidence in my doctor." A 41-year-old minister stated that his "answers are from a Christian standpoint . . . deception is a lie and no liar has access to the kingdom of heaven. Moral involvement necessitates the truth . . . There are often matters, both temporal and spiritual, that need adjustment before death comes . . . frankly, I have heard the complaint of deception lodged against doctors more often than any other complaint against the medical profession." A 61-year-old laborer stated, "I would not ask my doctor to lie to me." A 50-year-old housewife stated "My nature dislikes anything but complete frankness. I believe, aside from any plans I might make, I would wish to leave my family and friends in memory of a mother brave, sincere, and Christian in time of great mental and physical tragedy." A 27-year-old business man said ". . . To know the truth and if it were bad would ease my mind more than to be constantly wondering and because there may possibly be some spiritual and material arrangement to be taken care of in the early days of the sickness rather than when life is just fading away." A business man who neglected to give his age stated, ". . . Understanding that I was nearing the end would enable me to be more of a comfort to my survivors. Having a false opinion that I was going to get well and yet feeling worse as time passed would put me in a mental agony, I believe, an agony that would only add to my distress."

The above quotations all seem to have an idea of fatality as to the diagnosis of cancer. If we exclude skin cancer, then I believe their idea of at least this diagnosis being a very serious one must be considered as true. There is no use fooling ourselves, the percent of cure is a great deal less than desirable. Where the blame for this should be placed is not the purpose of this discussion. It should not be overlooked, however, that if cancer has been cured by adequate treatment, or if the results have been excellent even towards lengthening of life and making life more comfortable, then the physician's relationship with the patient, his family and friends, has not been strained and the medical profession's public relations with the laity have been greatly improved.

It is my opinion that the patient should be told not only because he wants to be told, but because it is medically and morally sound to do so. The proper method of telling the patient is an individual matter based on the present physical and emotional status of the patient, the desires of the relatives and the capability of the doctor in performing this task. I believe it is medically sound for the very reason expressed by the 65-year-old business man who stated, "How can I face a problem when I do not know what it is?" or by a 41-year-old business and professional lady who stated, "I would be optimistic that I should be cured. Also, a cure might be found very soon with the amount of research going on all over the world — one could become optimistic over that alone. (I likely wouldn't be so stoical if put to test)." A 26-year-old male laborer stated (after six serious operations from injuries of the last war): "because I feel there is always a chance for recovery, more so if the person

knows what he is up against. Most people won't sacrifice their wants for their needs when ill unless they know for sure what is wrong." A 57-year-old housewife stated "because one may have things to tell her or his family and business matters to settle—if no hope. On the other hand, I believe one would be more likely to use all available treatment if financially able to do so." Another 50-year-old housewife stated "I would like to know, so that I may set my house in order—physically, mentally and spiritually. . . ." A 30-year-old business and professional man gave a rather heroic type of answer when he stated, "I would like to have medical science try to help others by trying something new on me or if no chance I'd do the most to enjoy myself." A 50-year-old housewife stated, "So I could live my life accordingly and not expect my doctor to do miracles for me and to cooperate in all the things he decided for me to do . . ." A 34-year-old laborer stated, "My health is certainly my responsibility and I should be perfectly aware at all times of any ailments serious or not, that I may cooperate to the utmost with the doctor in charge to insure my fullest life time." A laborer who failed to give his age stated ". . . so that I will see clearly the necessity of full cooperation in prompt treatment . . ." A 33-year-old housewife reasoned, "so that proper and full treatment could be started at once." Another 33-year-old housewife stated, "They probably would guess it anyway, if not through symptoms perhaps through concerned attitudes of relatives and friends. Certainty of it and one's faith would help more than the ravages of doubt brought on by knowledge withheld." A 27-year-old housewife stated that she believes "the truth should be told to all concerned. It is the doctor's duty to tell his patients exactly what is wrong regardless of how serious the case." Another minister stated . . . "While my answers have been to the end that a patient should be told, I do not mean one should go about informing him hastily or until all diagnosis has been thoroughly completed, checked and perhaps rechecked . . . When we hide the fact that the temple is crumbling may we not likely be standing in the way of what God is trying to do for the soul within?"

An excellent answer to the question of whether or not the patients can be fooled was given by a 51-year-old business lady who stated, "It is very easy to make some remarks or even facial expression to belie the fact. If doctors always told the truth the patients wouldn't imagine so many things that do not exist." A 43-year-old business man gave another answer to this question. "If our practice is to tell the patient with cancer that he does not have it, our word will be mistrusted even by the one we can honestly tell he does not have it. People are cancer conscious today and it would seem best to exercise frankness for wholesome mental health." A 22-year-old business lady stated, "They would eventually ask and to sell them no would simply betray their faith in you." A 27-year-old housewife stated, Because they can surely tell by the actions and attitudes of those about them that all is not well, also by the failure in their own physical progress. Besides, cancer is too well publicized today for them to not suspect."

In answer to the question as to who should tell the patient concerning the diagnosis, two patients, the first a 21-year-old lady and the second a 29-year-

old laboring man, stated their reasons in a rather resentful yet business-like attitude as follows: "Because we go to the doctor to find out what ails us. Furthermore, we are the ones who have to pay the bills." "It is his business—his work—his duty and obligation. If a doctor can't handle the situation—then become a milkman like I did. If a patient is in your confidence, better keep him there. Agree?" Others took a little gentler attitude such as the 57-year-old housewife who stated, "Because he is the one who suspects or knows and I think it is better for him to tell it than an outsider—that way the patient will feel his doctor is one he can always trust." Another middle aged housewife stated, "He can better judge the patient's reaction and see something of value to both in future relationship. After all your patient believes in you, why cheat him?" A young business lady stated, "More confidence can be placed in a doctor who tells you the truth immediately. He can also allay present fears and explain the whole situation. A minister can follow up." A 51-year-old farmer when asked question #4 stated, "The patient should have more confidence in the doctor than the others and if not it is time to change doctors." Three other housewives stated, "Most patients have implicit faith in their doctor: therefore, no matter who else would tell him, he would want the final word from his physician." "I would prefer the physician to tell me . . . however, it may be advisable to be told by either of the others . . . all in accordance to the close and sincere respect for the doctor attending the patient." "A professional approach will help the patient over the first shock better than an emotional approach of a close relative. Then an immediate visit from a minister would be of incalculable help." A young male laborer stated, "We rely on you in other sickness and expect you to tell the trouble then. I can see no difference here." A 26-year-old business lady who stated that a close relative should tell the patient of the diagnosis rather indicts their doctor and minister by the very answer she gave as follows: "Many times a doctor or minister tells a patient in a cool way. The family might as well face it together . . ." A 27-year-old business man chose the combination of doctor and minister "Because they are not so closely attached as a near relative would be. I believe it can be told by the doctor and minister in a way that would not disturb the patient so much. Because the doctor knows the case and has diagnosed it and the minister can give comforting spiritual help and guidance." An older professional man stated, "While in most cases the doctor is the man who is in authority to speak, yet the patient's condition must occasionally warrant a minister's presence as being the man to hear the news. (Usually it is not news though.)" A 28-year-old laborer stated ". . . If the doctor is called upon to deny this information to a patient he must consider his own position in the light of Christian doctrine. This is a serious matter of fundamental importance to the patient . . . if the doctor is uttering a direct lie he must still be held guilty of lying in the eyes of God and must realize that he will be held accountable for his action." A 32-year-old professional lady stated that she had no particular choice as to whether a doctor, minister or close relative should be the informer, but she stated "Any one of the three depending upon the circumstances at the time. It

should be the one who can say it with the greatest amount of kindness and understanding toward the patient." A 37-year-old male answered the same question as follows: "the emotional stability of the patient should decide this question. Also, the confidence she has in her doctor, the faith she has in her minister and the closeness of the family."

It is possible only to include a few of the quotable comments. The ones included were selected as representative of the thoughts of the entire group and were not selected to bear out my personal opinion on the subject. I believe from the thoughts expressed in the quotations that in general, the greatest number of people not only desire the truth be told themselves but also desire that their close relatives be informed; a large majority did not feel that patients could be fooled; and an overwhelming number thought the doctor should be the one to tell the patient the facts about his or her illness.

In most cases, I believe the situation should be handled as follows and in the order listed below:

1. Be very positive of the diagnosis by rechecking and by consultation.

2. Study the patient's background with reference to personality, religion, family life, etc., to determine whether you think he would be better off to be told outright or whether he would prefer a close relative or minister or both to assist in telling him.

3. Consult the nearest relative and explain in detail the diagnosis and why you think the patient should be told.

4. Tell the patient and explain in detail the diagnosis, the proof of the diagnosis, the type of treatment needed, how long the treatment will take, what he can expect from treatment, estimate of the cost of treatment, where he can seek aid if unable to cope with the problem and advise he can get spiritual comfort and encouragement by confiding in his minister.

5. Talk with the patient's minister unless advised not to by the patient or his family. I have received excellent cooperation from every minister I have ever talked with concerning patients' problems; the patients and their families have been very grateful for this added service and understanding.

6. The following patients perhaps should not be told: those too young to understand; those mentally unfit; those few who have previously expressed their desire never to be told if they had cancer; and perhaps a few of the very aged who have a malignancy known to be slow in growing and would not cause their demise before some other ailment.

Summary

After studying the comments of patients, after talking with numerous individuals who had no part in the survey, and judging from experiences gained in truthfullness to the patient and his relatives, I firmly believe that an overwhelming majority of patients desire the truth, and desire that their personal family physician be conscientious, trustworthy and show a Christian attitude not only when handling diagnoses of a serious nature but in every patient-doctor relationship. This, we cannot ignore.

The Sensitive Stomach

Based on The Experience of Over Twenty-five Years of Daily Medical Practice.

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A great many patients in doctors' offices complain of indigestion or have a sensitive stomach, easily upset by food, drinks, even medicines taken on the prescription of a physician. This sensitivity of the stomach is also called nervous stomach, dyspepsia, nervous indigestion, functional disturbance of the stomach, spastic colon, irritable colon, spastic gastroenteritis, irritable digestive tract, psychosomatic gastrointestinal disorder, and a host of other names. The unfortunate fact is, that the medical student is ill-informed in this field because most teachers have little contact with the art of medicine, as it is practiced in medical offices and as a result are unable to instill into the mind of their pupils those practical hints which are so essential to successful treatment of the thousands and millions of sufferers. The problem of the sensitive stomach and general nervousness is the most important in medicine today; a great deal about it has been written by Dr. Walter C. Alvarez.[1, 2, 3] Although rarely fatal, the sum total of disability and interference with full efficiency of the individual in addition to the many discomforts experienced by the sufferer is quite appalling.

Fear, excitement, anxiety, worry, fatigue, shock, etc., have a marked effect on man's digestion and digestive tract; that the thought or sight or smell of good food makes one's mouth water is well known to everybody. Many scientists in the nineteenth century have observed while working with animals and man, that the tasting, the sight, or smell of food have a marked influence on the secretion of gastric juice, on the peristalsis of the stomach and intestines and on the function of the sphincters. Pleasurable as well as unpleasant emotions have a profound effect on the secretion of the stomach and intestines, including the peristalsis of the whole digestive tract. The external blanching and blushing in sensitive persons is an emotional phenomenon and perhaps finds its parallel in the blanching of internal organs,

such as the stomach and intestines. Blanching and blushing are the manifestations of blood supply to the areas easily affected by emotions, such as the face, upper part of the chest, ears, etc.

The simple game of playing cards may cause heart palpitations, heart arhythmias, bloating of the abdomen, increased peristalsis of the bowel with cramps and diarrhea, nausea, even vomiting. It is well known that fear and anxiety may cause diarrhea; a railway journey or going to a symphony or some other mild adventure, like a date or public appearance, may cause abdominal discomfort with looseness of the bowels in sensitive people. This tendency to a nervous condition of the intestines is probably inherited because under careful questioning it will be found that many of the ancestors of the suffering person have been similarly affected. In certain predisposed individuals, excitement, worry, anxiety, or any emotional stress will cause excessive gas and flatulence. Many persons are too sympathetic or too partisan or they get too violently outraged at the slightest provocation, in fact so much, that they cannot sleep and are always fatigued, because they are always too wound up to be able to relax.

The diagnosis of the sensitive stomach is usually made by a process of exclusion, after a complete examination including x-rays, laboratory tests, etc., has been done. Of course, there is no substitute for a good history, carefully taken and interpreted without bias. In taking a good history, I mean a story complete in everything of medical interest, which has happened during the life of the patient. The onset of the illness and its relationship to other events in life, the past family history, the past personal history and the person's attitude toward his disease may all be learned during the course of ordinary history taking. In my own practice I have found a personal inventory questionnaire very useful. It covers many questions which the patient answers with "yes" or "no," and are very helpful and time saving. The wise doctor will always take enough time to get a complete history and to follow up all clues helpful to make a diagnosis just as a good detective usually solves his case from clues and information relating to the particular problem. In taking a good history, it is usually advisable to stay with the chief complaint, which means to find out what bothers the patient mostly at this particular time. Since we talk here about the sensitive stomach, it is important to find out which symptoms pertaining to the stomach brought the patient to the doctor's office. Was it belching, vomiting with nausea, heartburn, distention with unrest in the abdomen, rumbling with gurgling sounds, or was it flatulence or constipation alternating with diarrhea. Has the patient lost any weight? Obviously, if the patient has not lost any weight, despite the suffering and all the complaints, one can safely eliminate any malignant disease, which might threaten the patient's life.

In taking a history, it is important to find out the patient's working conditions, if he is happy or unhappy on his job, how long his working hours are, if the patient gets enough sleep, if the house environment is such as to upset the patient whenever he sits down to eat; in other words, it is important to have in mind those factors which make the stomach too upset and too sensitive to be able to digest the food

properly. In addition to the extrinsic factors upsetting the patient the physician may be dealing with people made of poor fabric, people who have a poor physical and mental heredity, people who are poorly adjusted to the problems of daily life. Their body and nervous system were built out of poor materials and they can never be made over, so that they are well and stay well. These individuals are tired all day long, not because of hard work, but because they wear themselves out mentally, fretting all day long over trivialities, worrying about every little thing, feeling sorry for themselves, bemoaning their misfortune if things don't go too well, lying awake at night because they take their real or imaginary problems to bed with them. Many of these people with poor nervous ancestry spend their already limited energy by accusing themselves and many times the environment for all real or imaginary events in their life. It's natural that their digestion suffers, which only adds to their misery. These poor people with all the fears and phobias which they cannot shake off, are worn out and tired in the morning before they even start to work. The aches and pains in the abdomen together with poor digestion are only a by-product of the general makeup of the individual. Many of these sufferers undergo numerous operations just to find out that they are not better off after the operation and perhaps worse off. The removal of a chronic appendix, the extraction of teeth, or a hysterectomy will not cure these people. The same applies to the many operations performed for dropped stomachs, or other dropped organs. Many laparatomies have been done and are still performed in order to make a diagnosis, where a good history would give the physician much more information. Fortunately exploratory laparatomies are fewer today than they were during my student years. I do not feel that any digestive symptoms are ascribable to enteroptosis, except for the fact that these same hypersensitive people with poor ancestry very often have enteroptosis. In this group one should also include people with digestive allergies, where the history will bring out that the patient or his relatives have, or have had, hay fever, asthma, eczema, hives, etc.

The poor constitution, which is inherited, can be found in the big, strong muscled man as well as in the frail looking, small and sparely built individual. The history of repeated illnesses and long continued disablement after every illness or accident should be enough to put the physician on guard. Although the symptoms and complaints may not show up until the person is in the twenties or so, the defective tissues must have been there from birth.

Unfortunately it's sometimes very difficult to elicit a good history, unless the physician is wise enough and has enough practical experience in dealing sympathetically with people who are suffering from some functional disturbance of their internal organs, but where all of the x-rays and laboratory examinations are negative. Insanity in the family is very important in the history, and yet people will usually deny it, if questioned about it. In addition nobody wants to be labeled neurotic, since it seldom if ever arouses any sympathy with the family or with neighbors. Taking a good history requires much more time, sympathy, and above all, much love for people and a strong desire to help humanity. It is unfortunate that

the physician's time is often very limited, so that he seldom can do justice when dealing with these sufferers. In addition to patience and time the physician needs the sympathy and proper temper to help these people. A brusque doctor is seldom able to help, especially if he is convinced that harsh words will bring the patient to his senses and make him snap out of his troubles. Personally I have never seen anything good resulting from this type of practice. In addition to a good history, it is important to watch and analyze the emotional expressions of these suffering people. Some will be depressed, sullen, and hard to get close to. Others are talkative and abnormally gay, or tearful and trembling. Wringing of hands, nailbiting, blushing, excessive perspiration, jumping at the slightest noise, etc., are usually signs of a nervous and emotional instability and indicate a general hypersensitivity of the system.

Long years of practical experience have taught me to give these poor sufferers a complete physical examination to impress the patient that I know and have made sure, that no organic disease exists. Many of these people are then satisfied with the explanation that their nerves and emotions are causing the suffering. On the other hand, there are some who wander from one physician to another and are easy prey to quacks and charlatans, who adjust their spines, massage their nerves, lift their stomachs, treat them with strange herbs and vitamins, to rid the system of some poisons caused by so-called "autointoxication from the stomach and intestines." Some are not satisfied unless they have one operation after another, develop new aches and pains and are just as miserable as before the operation.

Adding to a good history and complete physical examination it is important to remember that there exists a difference in human responses to emotions and to painful stimuli generally. Some people can tolerate more pain than others and probably much of what we consider as bravery, is nothing else but the expression of this difference in the emotional and painful response. There is obviously a difference between the cold, insensitive, unemotional human being, who is unaffected by sadness and the warm sentimental, sensitive person who goes to pieces when affected by a sad book or a sad story. Of course the training and childhood environment have some influence on the emotional life of the individual. A "Mom's boy" or a "Pop's girl" will probably be in a worse position to face difficult problems of life than the unpampered individual. However, it seems to me, that inheritance plays the major role in the physical and mental resistance of the personality; in fact, it is safe to assume, that a healthy and normal nervous ancestry usually predicates a normal and healthy emotional environment for the offspring.

The sensitive stomach is a part of a general condition, a symptom of a general systemic hypersensitivity, which the bearer inherited from his ancestry. It's part and parcel of a frail and sensitive nervous system which is inadequate to the stress and misfortunes and burdens of daily life. Most of these people start out in life quite healthy and apparently well, but break down under stress and marital unhappiness or grief in losing a loved one, or some other disappointment or anxiety which ordinarily will not cause such upheaval in individuals with healthy and sturdy

ancestry. These poor people suffer a nervous breakdown or experience nervous indigestion or some other functional disturbance of the system like heart palpitation, heart arhythmias, choking sensations, bladder disturbances, and various aches and pains, insomnia, skin rashes, etc., as a manifestation of some mental and emotional conflict, which they cannot cope with. Emotional disturbances do make us physically ill and we can actually worry ourselves into high blood pressure, skin diseases, stomach ulcers, and other disorders. Common everyday experiences and life situations may under certain circumstances produce nervous stress affecting peace of mind and self respect of the individual.

There is ample evidence in medical literature that man's organs react to emotional events of life the same way as they react to physical wear and tear. It is a fact, that emotional disturbances, painful life situations, nervous shocks will produce organ disturbances of a functional character, like dyspepsia, loss of appetite, spastic conditions of the colon, heart palpitation, skin rashes, even allergies, etc. Such functional changes have been observed in every organ of the human body. Troublesome life situations, if sustained for a long period may not only produce functional disturbances of body organs, but eventually may lead to organic changes in the tissues as evidenced by x-ray and laboratory studies. Stomach ulcers should be mentioned here to illustrate the visible damage to the tissues by sustained and continuous disturbances of the function of the stomach due to nervous stress. Dr. Stewart Wolf, Professor of medicine at the Oklahoma Medical School,[4] has conducted some interesting studies of stomach function in patients with stomach ulcers and comes to the conclusion that emotional factors play a prominent role in sustaining gastric hyperfunction, which is the most important factor in the pain produced by the ulcer. Since stomach and duodenal ulcers can be produced by emotional conflicts and nervous stress, it is safe to assume that probably many other organic diseases like gall-stones, kidney stones, toxic goiter, high blood pressure, etc., are the result of prolonged functional stress and strain. The human brain is the communication center between the environment and the internal organs of the human body. Adverse life situations, emotional conflicts, marital unhappiness, anxiety, fear, worry, and anger will be communicated from the brain to the internal organs of the body and will produce in susceptible persons, in persons with poor nervous ancestry and heredity functional disturbances causing disease symptoms which we call psychosomatic. The word means to imply that psyche and soma are complementary to each other. Psychosomatic disease is also called functional disease or nervous disease and embraces a host of nervous disorders like nervous indigestion, nervous disorders of heart, spastic colon, nervous bladder, etc.

Psychosomatic or somatopsychic is a term which fuses the psyche and the soma into a comprehensive unity within which any function or disease of one is associated with changes in the other.[5] In earlier eras the mind was included in the category of soul, which was supposed to continue in a hereafter. The association of the mind and body had been a deep mystery up to the 20th Century until Dr. Sigmund Freud[6] in-

troduced some light into the mind-body problems by new psychological methods, based on the association of ideas and the symbolic meaning of behavior, words and dreams. Dr. Freud discovered the vast mystic area of the unconscious mind, which is capable of producing emotional conditions and disturbances of behavior without the individual's conscious participation and knowledge. Associated with all emotions are the bodily functions and processes of the inner organs, producing symptoms, functional changes, and perhaps in a long run, gross physical and anatomical organ changes of varying degree commensurate with the emotional stress and mental disturbance.

The demarcation between health and illness is simply quantitative. Every human being shows some physiologic changes in appropriate organs in response to mental activities and emotional influences of life. These changes in blood supply, innervation, and motility of the inner organs will produce disturbing symptoms and disease in some persons, while in others they do not intrude on the person's consciousness and do not interfere with the normal autonomous functions. Normally we are not conscious of our heartbeat or of the motility of the intestines, although they go on day and night. Nervous, hypersensitive persons with poor nervous heredity become overconscious of these normal functions of the inner organs, and even more so, if there is some slight disturbance present which ordinarily will not annoy the person with good heredity.

Emotions, like other experiences are responses to stimuli. Conditioned emotional responses in human beings are easily established and once established, the functional disturbance of an organ will recur or continue, even in the absence of the original exciting emotion. The conditioned response of the same organ in a certain situation follows a fundamental law of nervous activity, namely, that once a chain of neurones has been made to function collectively, it is a path of low resistance, over which stimuli will flow with ease.

Since we are here primarily concerned with the sensitive stomach, it follows, that once the stomach and intestines get functionally involved in some emotional disturbance, responding with belching, heart burn, nausea, rumbling, distention, etc., that this same response of the internal viscera is to be expected in response to similar emotional stimuli because their neurones comprise a path of low resistance. The more this pathway is used and affected, the easier for the stomach and the intestines to get upset by the slightest emotional stimulus. So we can see that some people are chronically affected by recurrent indigestion many times without apparent provocation, whereas others will be plagued by recurrent spells of paroxysmal tachycardia because the nervous pathways to the stomach and intestines or to the heart respectively, comprise a path of low resistance.

The functions of the stomach and intestines are controlled by nerves, which are known under the term of autonomic nervous system. This system is divided into sympathetic and parasympathetic nerve fibers with its accompanying nerve centers, located in the subcortical part of the brain. These brain centers are not under control of our will; they work autonomically and are not under our conscious control. Parasympathetic activity usually causes increased motor

and functional activity of the stomach and intestines, while sympathetic activity decreases it. Emotional stress and upsetting life situations will have different effects on our digestion, depending on the predominance of sympathetic and parasympathetic influences. Neurotic people with poor ancestry commonly exhibit evidence of over-reaction of the autonomic nervous system to emotional upset. They usually also show exaggerated circulatory and chemical responses in the blood to physical stress as well.

Before turning to the treatment of the sensitive stomach, I wish also to mention the modern concept of disease as expressed by Dr. Hans Selye,[3] who has demonstrated that continuous stress and emotional strain produced by the excitement of everyday business activities will unsettle the normal balance of hormones in the bloodstream. The disturbance of this hormonal balance may produce organic disease, such as, arthritis, diabetes, hardening of the arteries, etc., possibly due to release of histamine. At any rate, it might be possible in the future to check the balance and to prevent these diseases.

Treatment What is the treatment of the sensitive stomach and how can one overcome it? I believe that the handling of the person as a whole is the most important factor in the treatment of any functional disorder, be it a sensitive stomach, nervous heart, or any other nervous involvement. After reassuring the patient that the physical, roentgenologic and laboratory examination failed to reveal an ulcer, cancer, tumor or any other serious disease, it is advisable to assure the patient that his symptoms are not imaginary; that they are really felt by him and that they are an expression of an emotional disturbance or of fatigue, or some other problem plaguing the patient and seeking a solution. Sympathy, kindness, and tact are the greatest assets in the physicians' armamentarium when dealing with nervous hypersensitive people. We must be frank and honest in our discussions, showing the patient respect without contempt for his difficulties. To tell the patient to "go home and forget about it," or, "snap out of it," is like telling a patient with pneumonia that his high temperature with the accompanying weakness, loss of appetite, cough, etc., is the product of his imagination, and he could snap out of it, if he wished to. Personally, I do not believe that people want to be sick, nor do they enjoy misery.

I have found in my own practice very few patients indeed who have been invalids so long and have found so many advantages in their way of living, that it was hard to do anything for them, unless I could convince them that there are more advantages in a productive life. In this group belong those who are classified as malingerers. Malingering is the feigning of illness for personal gain, but its close relatives are exaggeration of disability and the blaming of an injury for some unrelated, pre-existing illness. The fraudulent practices of malingerers under the temptations of all sorts of insurance coverage, the technic of many who simulate disease to gain hospitalization or other sick benefits and the histories of many drug addicts present quite often a problem to the physician. Here I should mention the hysterical complaints of a few, who are afraid to be cured by conventional treatment for some ulterior motive only known to themselves, but

who suddenly will be cured of a hysterical paralysis or blindness by some miraculous drinking water and throw away their crutches after visiting a barn "emanating Uranium."

The majority of patients with a sensitive stomach will be satisfied to hear that nothing seriously was found: that their fear of cancer or some other serious illness is groundless, and their difficulties stem perhaps from some problems which, if adjusted, would help their symptoms. Of course, there are many life situations which trap the individual in such a way that no easy solution can be found. If the main source of anxiety is poverty and debt, or an unhappy marriage where one partner is chained to the other only by love for their children, or a similar insoluble situation exists, then the physician will unfortunately be of little help. But even these hopeless situations can be helped if the individual learns to accept what cannot be changed, if he understands what is causing his digestive troubles and if he learns to acquiesce. The most important medicine that the physician can give to the patient with a sensitive stomach or for that matter to any individual, to whom inheritance and environmental circumstances have given an uneven deal, is to advise the patient that there is no cure for his condition, that no operation will make him over, and that he had better learn to get along with his handicap with the help of some medicines, which will make things a bit easier.

The diet of the sensitive and dyspeptic should consist of bland foods, eliminating all gas producing materials and indigestible roughage. I have seen many times a patient with a sensitive stomach getting into a mess because of some special foods and vitamins recommended by the health food store—unfortunately a great bulk of dietary advice is based on superstitions, popular and even scientific misconceptions, and personal prejudices. Many of these patients cannot digest roughage including raw fruits, vegetables, and salads and will do well on a smooth diet. It is of interest to note here that a milk diet, which is considered by the lay public and many physicians as easily digestible, will make many people bilious and cause bloating and abdominal discomfort.

The elimination of milk and other dairy products except butterfat is very helpful in many dyspeptics. Of course the mechanics in the dyspeptic are such that diet alone will never cure a sensitive stomach, but it will be of help if practiced with the realization of the other factors, which were mentioned previously. Most of the time the diet has to be worked out by the patient himself by the method of trial and error. Here the physician can be of great help by advising and encouraging the patient to try again and again. Generally a bland diet, free of coarse foods, of skins, seeds or gristle, and gas producing vegetable like cucumbers, pineapple, celery, beans, cabbage, onions, melons, peanuts, peppers, and jams is well tolerated. Of course the personal experience of the patient should always be respected. Hot cakes, waffles, chocolate, badly fried and greasy foods, spices, condiments, alcoholic beverages, should also be omitted. Many vitamins and other health capsules and liquids sold to the public are not only not helpful but as it happens very often, they upset the sensitive stomach even more, so that the experienced physician should

always make sure that these tonics and health elixirs are stopped at once. The public is apparently unaware of the fact that vitamins are required in minute amounts and are usually provided with the daily intake of food which the average person consumes. In themselves, they neither supply energy nor are they capable of renewing lost vigor. In prescribing a diet, routine use of a rigid diet for a certain condition is less satisfactory than a diet adjusted to the individual needs of the person. In my long experience with these sensitive and highly emotional individuals, I came to the conclusion that many of the drugs and medicines ordinarily prescribed and used for a variety of diseases do upset the stomach and intestines of many people. Here, I like to mention especially acetylsalicylic acid and related preparations. As such, quite often the capsule containing the drug will be upsetting, whereas the same medicine taken out of the capsule and given in powder or tablet form will do all right. Perhaps the gelatin capsule is the real offender and I therefore never or seldom ever prescribe medicines in capsules, unless I make sure that the patient's stomach can tolerate it. I do not include here allergic systemic reactions caused by certain medications like hives, skin rashes, wheezing, etc., due to penicillin for instance. Often the patient with nervous indigestion or spastic colon is underweight because he usually eliminates so many articles of food that he has very little to eat. It is well to encourage these undernourished people to eat as much butter as possible.

Constipation is quite often another problem, causing discomfort and concern to many people. Laxatives and purgatives do more harm than good because they increase abdominal distress and cause flatulence in the intestines of the sensitive individual. Prunes, well cooked, will usually relieve constipation if eaten every morning. Plain glycerin suppositories or a low enema with plain warm water will usually serve well, if taken once or twice weekly to relieve constipation. More regular habits and going to the toilet at a regular time even without any inclination will often cure constipation in many cases.

If the physician finds that the patient with a nervous and functional disorder spends his energy foolishly; stays out too late at night, is too fussy about the house, the garden, etc., it is well to advise him to preserve his strength, to get more rest, to smoke less, to play less cards and exercise less strenuously. Others must be advised to be less ambitious, to stop driving themselves, to stop pretending that they are strong and their nervous energy is limitless. A little nap in the afternoon for the overworked woman in the house, or a good rest over Saturday and Sunday with complete relaxation will do wonders with some tired businessman or executive. A complete rest or a prolonged vacation away from home is unfortunately beyond the reach of the average individual; however some slowing down can usually be accomplished. Going to bed early will be of great help, since it not only relaxes the nervous system, but also helps the person to go to sleep when he would otherwise lie awake all night. Of course, any advice should be practical and suited to the patient's needs, purse, and intelligence. Obviously, it is not good practice to advise a vacation away from home, when the mere thought of the trip disturbs the person. These people are better off at

home with the accustomed daily routine than in a strange place.

A good night's sleep is quite essential to relieve the nervous system from the bothersome and despairing thoughts, which cause so much suffering. If a good night's rest cannot be gotten by counting your sheep or your blessings, then a mild sedative will usually work wonders.

Personally, I believe that the newer, mild sedatives and sleep producing drugs are quite safe and need not be withheld from a person with insomnia because of fear of habit forming. Except perhaps in the case of markedly weak personalities, these synthetic chemicals are an excellent crutch, not only for relieving sleeplessness, but also for the relief of stomach and intestinal upsets. If the physician combines the mild sedative with an anti-spasmodic, which relaxes the spasms of the hypersensitive stomach and intestines, then he can help the nervous patient quite effectively.

The colon or any part of the bowel forming gas pockets and making the individual miserable may be helped by the knee-chest position, so that the trapped gas can escape; sometimes deep breathing with forceful contractions of the abdominal muscles will force the trapped gas out.

In giving medicines to these chronic sufferers it is a good idea to insist that the patient take the medicament in such a way that it will not lose its effect. A good way is to leave the medicines off for a day during the week or perhaps discontinue it every three or four days. It seems that people with a sensitive stomach or general nervous hypersensitivity are especially prone to get used to medicines, so that they lose their effect. It is wise, therefore, to change the medicine for a while to prevent this sort of situation. Another wise precaution is to restrict the daily dosage to a minimum, just enough to make life easily bearable. If the symptoms subside and the individual is quite comfortable, he may quit the medication and take it only when necessary to relieve tension and abdominal discomfort or to prevent it. Many a time, a small sedative taken before an event like a public appearance may save the individual a lot of suffering. Some people have abdominal distress with cramps after defecation and a feeling as if the bowels would move again accompanied by a sense of exhaustion and faintness. A mild sedative with a spasm relaxing drug taken before the bowel movement will usually help to prevent this type of emotional response and will keep the individual on an even keel.

Summary

Diet and medication will not cure the hypersensitive stomach, but it will be of help if, in addition, the physician discusses with the sufferer the emotional and family aspects of his condition, so that he may have more insight into his problems, and may learn to accept them and make the best of a bad situation.

It is evident, that in such a complex condition as the sensitive stomach, in which no specific cure is available, the treatment

must be symptomatic. This means that in addition to diet and medication the treatment *must* include attention to emotional factors, with a view to minimize their influence and to teach these people to realize the relationship of anxiety, anger, fear, frustration, etc., to bodily symptoms and physical complaints. If one learns to live within the frail budget of his mental and physical endowment, one can accomplish much in spite of the inherited handicap.

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WANT A CHUCKLE?

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"OFF THE RECORD . . ."

SHARE a light moment or two with readers who have contributed stories of humorous or unusual happenings in their practice. Pages 15a and 19a.

EDITORIALS

The Communist Student Problem

The *Journal of the American Medical Association* of June 25, 1955 was at pains to clear up the confusion regarding two organizations of medical students. The Student American Medical Association gets a highly favorable rating and the support of the students of the United States who are elected to its offices. "It has brought credit to its members and to their older colleagues, the practicing doctors." It is a needed "international exchange of information of particular interest to these future doctors." On the other hand, there is the International Union of Students, said to be "purely Communistic in nature." It is centralized in Prague and publishes a bulletin, the *Medical Student*, which is distributed to "strategic outlets." The next meeting is to take place in Warsaw. This outfit has issued a poster with the American and Soviet Union flags entwined.

The idea of a medical students' organization dominated by the Communist apparatus, or by any other alien racket, is an abhorrent one. Submission to such thought control should disqualify any candidate for membership in a profession notable for complete intellectual freedom. We suggest that steps be taken by our medical schools to screen applicants for entrance on this score.

Medical students already in the schools "should beware of the background of the International Union of Students" and they should be subject to punitive action for inimical conduct in this sphere. This should be made the subject of agreement upon conditioned admission to the schools.

Strong Arm Methods Called For

According to Senator Price Daniel, of Texas, New York leads all other states in addiction to narcotics. There are 9,458 known addicts, with probably twice that number in actuality. However, 95 per cent of these addicts are in New York City.

While some effect is being achieved to cut down this national lead, it is

obvious that the situation calls for special Congressional measures with full powers of enforcement, if the evil is ever to be completely eradicated. This is a case where education alone will never suffice; Red China, the principal source of the traffic, is not amenable to sweet lessons; the very fact that the results of her narcotics propaganda are found concentrated in New York should simplify the problem of smashing the system.

Are First Things Now Last?

At the last meeting of the Medical Society of the State of New York a resolution was accepted by the society which stated that,

Whereas, There is a relatively new and insidious practice in hospital fund raising campaigns in which the staff doctors are told how much they are expected to contribute,

Therefore, be it Resolved, That the Medical Society of the State of New York investigate the situation, and

Be it further Resolved, If this situation shows this to be a state-wide condition that measures be taken to alleviate the situation.

As things stand now, the type of blackmail aimed at in this resolution inures directly to the benefit and prestige of our well-heeled climbers of indifferent attainments at the expense of properly ambitious youngsters. It leads to a vicious set-up.

Perhaps if this scandalous racket, and others, like fee-splitting and the condoned (?) practice of medicine by hospitals could be wiped out, the cause of legitimate medicine might be furthered in such fields as cancer. As of now, first things seem to be last.

Outstanding Nonentities

There was a period not so long ago when the liveliest interest in ghost writing prevailed. It was well known that leading statesmen and other public figures were nothing but robots mouthing speeches and addresses prepared by brains of a sort behind concealing screens. For some reason—not because there is any less ghostwriting—this interest has waned. This is not a healthful state of affairs and we should at least ensure the *certification of validity* in the case of supposedly authoritative medical pronouncements.

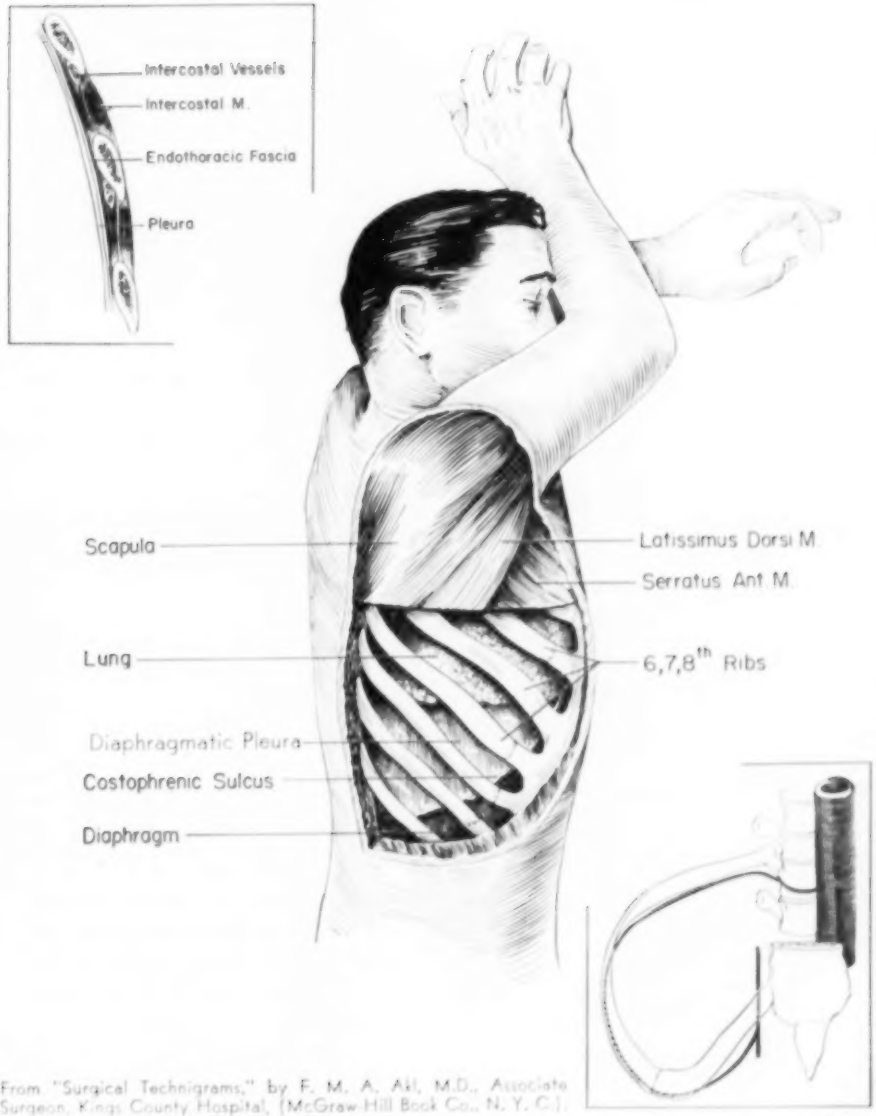
The insult to the profession involved in synthetic "gobbledegook" is something to grieve about. Apathy in this matter should be replaced by the liveliest interest.

The published productions of our "outstanding" brethren should be certified. Such certification would not imply eminence, but only validity of the productions—validity meaning *not ghost-produced*.

We all know "outstanding" men of very meager endowments and achievements; they are the ones obliged to look to ghostly associates.

To be deplored is the fact that merely conspicuous figures can so often possess a sham glamour, although these characters arouse our keen appreciation of the entertainment provided by them.

Thoracostomy



From "Surgical Technigrams," by F. M. A. Akl, M.D., Associate Surgeon, Kings County Hospital, (McGraw-Hill Book Co., N. Y. C.).

1

Place patient on uninvolved side slightly tilted forward, with arms extended cephalad. Prepare and drape operative field. Palpate angle of scapula and locate intercostal space immediately caudad. Introduce aspirating needle past superior border of rib delimiting interspace in posterior axillary line. Try adjoining interspace if no exudate is recovered.

2

Incise skin, subcutaneous fat, and fasciae overlying selected rib, across posterior axillary line, to distance of 8 cm.

3

Continue incision into border of latissimus dorsi and underlying serratus anterior muscles down to fascioperiosteum enveloping rib. Clamp and ligate bleeding vessels.

4

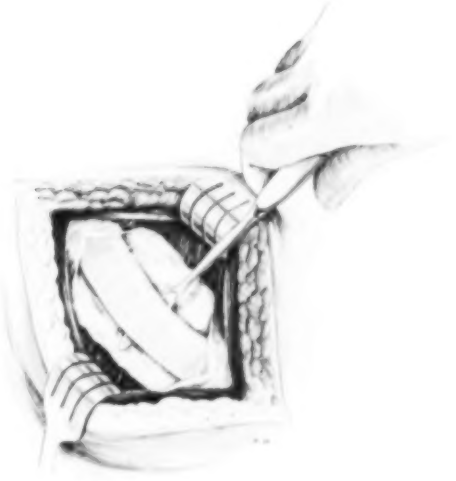
Retract wound edges. Incise fascioperiosteum over rib axis.

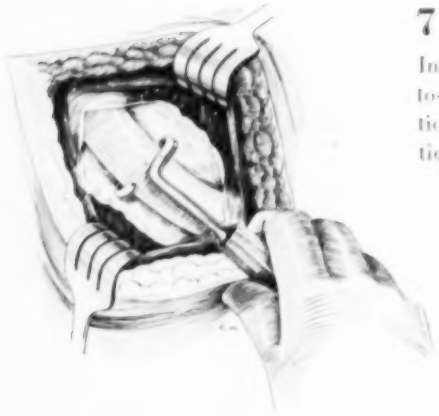
5

Reflect fascioperiosteal flaps over both rib borders with periosteal elevator, being careful not to injure intercostal vessels and nerve running within fascioperiosteum in subcostal groove at caudal border of rib.

6

Carefully introduce blunt separator beneath rib and detach endothoracic fascioperiosteum with parietal pleural lining from inner surface of exposed rib segment.



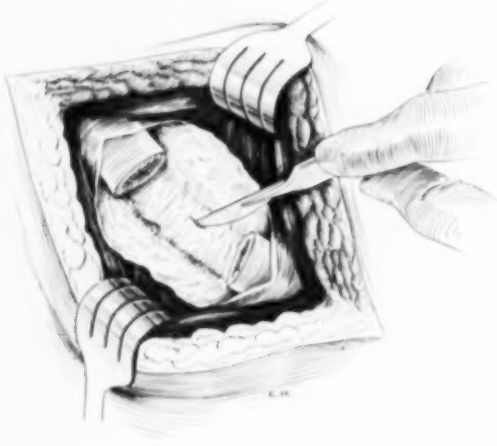


7

Introduce S separator, lift rib, and with to-and-fro movement complete mobilization of rib segment chosen for resection.

8

Elevate rib, introduce open costotome, and transect one, then the other, extremity of mobilized segment of rib. Discard resected segment.

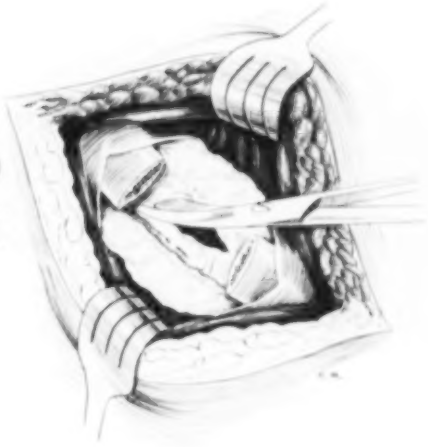


9

Make small incision through axial line of rib bed into abscess cavity.

10

Allow exudate to escape slowly. Enlarge incision with dissection scissors.



11

Introduce finger into abscess cavity. Gently break fibrinous septa within abscess cavity.

12

Insert drains into abscess cavity. Approximate wound loosely to either side of drain.

THORACOSTOMY NOTES

Anatomy

The *thoracic cage* is constructed of a framework of ribs, attached to the sternum in front and the vertebral column behind. The balance of the thoracic wall is made up of the pericostal coverings, as well as the intercostal and overlying muscles.

Each rib is enveloped in a fibrous sheath. The sheath surrounds the rib and supports the intercostal vessels which run for the most part in the subcostal groove at the inferomesial border of the rib. The sheath consists of an exothoracic and an endothoracic layer. The exothoracic layer comprises the costal periosteum and the external intercostal fascia. The endothoracic layer is composed of the costal periosteum, the endothoracic fascia, and the parietal pleura.

The intercostal muscles lie between the ribs. The muscles originate at both surfaces of the lower rib border and insert into the upper border of the rib below. The muscle fibers of both sets run in an oblique direction: the external intercostal muscle fibers run obliquely downward and forward, while those of the internal intercostal muscles are directed obliquely upward and backward.

The concave bases of the two lungs rest upon the convex sides of the cupola of the diaphragm. Their borders glide against the parietal pleura, bobbing rhythmically up and down each costophrenic sulcus during respiration. Normally they oscillate between the sixth and seventh ribs at the axillary lines. During disease they become fixed to the parietal pleura at a much higher level, which depends on the amount of exudate present within the inflamed pleural sac.

The costophrenic sulcus is the interval of contact between the diaphragmatic and parietal pleura, limited above by the margin of the lung and below by the pleural reflection. The pleural reflection curves from the sixth costal cartilage obliquely caudad and dorsad in the direction of the twelfth costovertebral junction. On the right side it lies slightly higher on account of subjacent liver, while on the left side the pericardium limits its anterior extension. The costophrenic sulcus may be obliterated by adhesions. When this occurs, the periphery of the diaphragm becomes plastered against the thoracic cage. As a result, the subjacent peritoneum lies much closer to the body surface, where it may be inadvertently injured during operations on the thoracic wall.

Technique

Commonly a portion of the eighth or ninth rib is resected for drainage. The selection depends on the location of the abscess cavity as indicated by preliminary aspiration. Both ribs lie below the angle of the scapula and are suitable for the procedure.

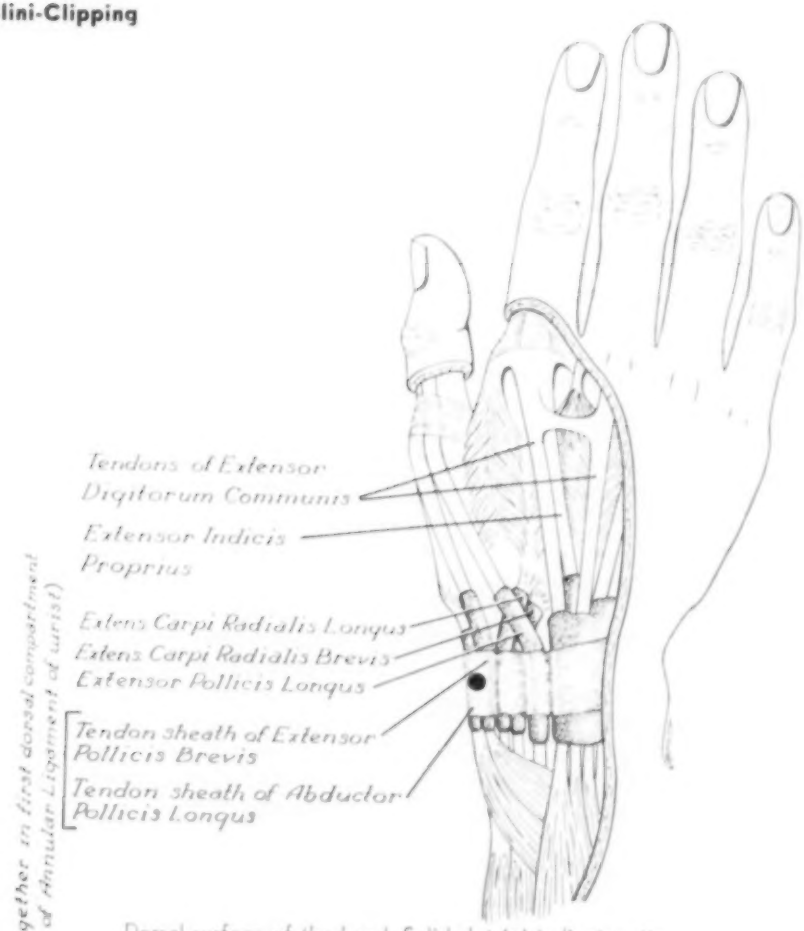
If the seventh rib is chosen for resection, the incision is made across the midaxillary instead of the posterior axillary line. This prevents blockage of the thoracostomy opening by the angle of the scapula when the arm assumes normal position.

The anterior serratus muscle may originate from the outer surfaces of any

of the uppermost ten ribs. It is usually encountered and incised to expose the rib. The border of the latissimus dorsi muscle is exposed at the posterior angle of the incision and is retracted or incised.

Regardless of x-ray evidence, it is always advisable to locate the abscess cavity by aspiration. When aspirating the exudate, it is important to keep in mind the location of the intercostal vessels. The needle is inserted in an upward direction immediately beyond the upper border of the rib delimiting the selected interspace. The extent to which the diaphragm may be elevated should be determined both by radiographic study and by aspiration.

Clini-Clipping



Dorsal surface of the hand. Solid dot (•) indicates site of pain and tenderness in DeQuervain's disease.

Temporomandibular Joint Function

The general practitioner is often faced with problems related to the temperomandibular joint. Even though many of these symptoms stem from malocclusion and are consequently handled by the dentist, the physician should be familiar with the anatomy and pathology of this joint in order to advise and direct his patients.

Anatomy The temperomandibular joint is a compound diarthrodial joint. The head of the condyle of the mandible articulates with the glenoid fossa of the temperol bone and the articular tubercle at the root of the zygoma (Fig. 1). Interposed between the two bony articular surfaces is the fibrocartilagenous articular disc which separates the joint into two spaces. The disc is oval in shape, thinnest in its center, and greater in the transverse than the anterior-posterior diameter. It is attached at its periphery to the articular capsule of the joint and to the tendon of the external pterygoid muscle, which penetrates the capsule anteriorly (Fig. 3). The articular capsule extends from the neck of the condyle to the margins of the glenoid fossa medially, laterally and posteriorly. Anteriorly, it is attached to the anterior margin of the articular tubercle. The capsule is strengthened on its lateral surface by the temperomandibular ligament which extends from the outer temporal portion of the zygomatic arch and articular tubercle, downward and backward to the lateral margins of the neck of the condyle. It is wider at its upper or zygomatic end (Fig. 2).

Two extrinsic or accessory ligaments are described which contribute little to the stability of the joint. They are the sphenomandibular and stylomandibular ligaments. The former extends from the angular spine of the sphenoid bone to the lingula on the medial surface of the mandible. The latter arises from the tip of the styloid process and extends to the posterior border of the ramus.

The muscles which act on the temperomandibular joint can be classified on the basis of their function as elevators, depressors and protractors. Those that elevate the jaw include the masseter, internal pterygoid and temporalis. The depressors are the digrastricus, geniohyoid and mylohyoid. In order for the depressors to open the jaw, the hyoid bone must be stabilized by the infrahyoid muscles. Two other factors also contribute to the opening of the jaw, gravity and the neck extensor muscles. The external pterygoid is the only protractor or protruder of the jaw.

Movements The articular disk and condyle move backward and forward from the glenoid tubercle to the poste-

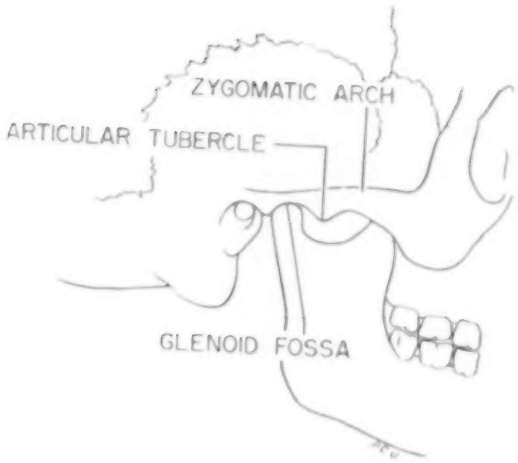


FIG. 1

rior lip of the glenoid fossa. This forward motion is produced by the external pterygoid through its attachments to both the disc and condyle. The lower portion of the joint, or the meniscocondyle articulation, is the site of almost pure hinge motion. Through a combination of these two movements and the interaction of the muscle groups, the mandible can be moved freely in all three directions of space. During talking, movement occurs chiefly between the condyle and disc. As the mouth is opened widely, the articular disc and condyle slide forward and downward to the articular tubercle. Two-thirds of opening can be performed by pure hinge motion, but to gain full opening of the jaw, the disc and condyle must slide forward and downward. In the chimpanzee, opening is entirely pure hinge motion. Protrusion and retraction are gliding motions. Since no lateral motion is permitted at the T.M. joint, movement of the mandible to either side of the midline is produced by the forward sliding of one condyle, while the opposite one remains stationary or moves backward. Trituration or chewing is a compound movement in which the condyle and disc of each side move in opposite directions.

Evaluating T.M. Joint Function The previously described movements of the condyle can be readily palpated by placing the finger tips anterior to the tragus of the ear. The posterior surface of the condyles can be palpated when the teeth are closed, if the little finger tips are placed in the external auditory canals. As the mouth opens, or the mandible is moved from the midline, the condyle no longer can be felt. These are important diagnostic features in evaluating dislocations and fractures of the condyle.

The behavior of the midline of the jaw is often very revealing. This can best be evaluated by first marking the midline of the upper and lower lips by a common vertical line. Normally these points should stay in the midsagittal plane on opening the mouth and protruding the jaw. If the midline of the mandible deviates to one side, is not traveling forward and downward, this is either due the motor nerve paralysis or extrinsic or intrinsic joint pathology. If the midline of the mandible is off the midline before the mouth is opened, it must then be assumed the opposite condyle was forward to start with, possibly due to a tumor of the glenoid fossa.

The mandible at rest is suspended by tonic muscles. The teeth are not in contact (occluded) and the joint is relaxed with the condyle and disc at the posterior base of the glenoid tubercle. This is known as the "rest position". As the teeth are brought into the occlusion position or centric position, from the rest position, the mandible moves through 3 to 4 mm. by hinge motion at the T.M. joint. Deviation from the midline during this maneuver usually indicates improper contact between the teeth. (Certain atypical joint conditions can also cause this form of deviation.) Malocclusion can also be discerned by having the patient lightly click his teeth together. A double or indistinct click may be heard instead of the normal single sound.

Temperomandibular Joint Pathology The condyle is the major and most important growth center of the mandible. Unlike most growth centers, it persists into adult life. This is exemplified by the prognathism which develops in hyperpituitary syndromes. Mandibular growth can be retarded by several mechanisms. In the cretin, interestingly enough, the micrognathis is reversible and normal mandibular growth ensues with proper therapy. Perhaps the most tragic examples of arrested condylar growth are seen in the "bird-face" deformity, where the chin is all but absent. Middle ear infections in childhood with spread to the T.M. joint used to account for most of these cases. With bilateral involvement, jaw growth ceased, and the individual retained his child size mandible. Trauma, arthritis and x-ray therapy may also cause arrest of the condylar growth center. From the above it can be appreciated that surgery in the region of the condyle should be delayed until growth is complete.

Rheumatoid and degenerative arthritis both involve the T.M. joint in their generalized course. Rheumatoid arthritis with its proliferative reaction often leads to fibrous ankylosis of the joint, followed by bony ankylosis. Degenerative arthritis, after many painful years during which the articular cartilage is eroded away, may become painless as the exposed bones mold themselves into a new pseudojoint and become covered with a semblance of fibrous tissue.

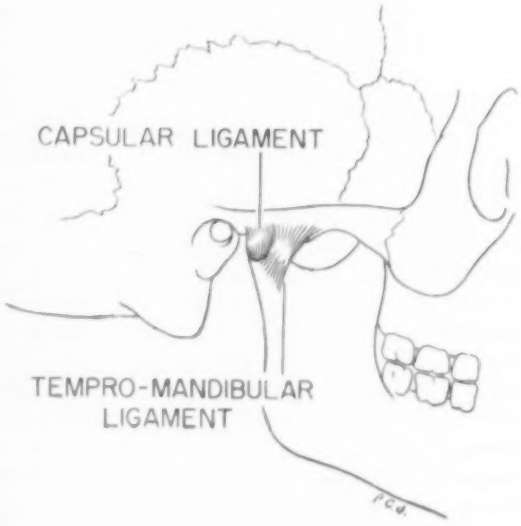


FIG. 2

Whatever the predisposing causes may be to arthritis of the T.M. joint, mal-occlusion is always an important offender.

T. M. Joint Symptoms

Pain at the T.M. joint may be localized to the region of the joint and be present only on moving the jaw. Referred pains, radiating to the ears, side of face, neck, tongue, buccal mucosa have all been described. The close proximity of the tympanic membrane, eustachian tube, auriculotemporal and corda tympania nerves have lead to the postulation of complex syndromes which are supposedly brought about by dysarthric conditions of the T.M. joint. It is probably wiser to think of extrinsic joint conditions when multiple symptoms such as tinnitus, vertigo, deafness and remote sensory symptoms are associated with T.M. joint pain. Nasopharyngeal tumors may go undiagnosed for critically long periods of time because of their obscure initial symptoms.

In older individuals, the loss of teeth increases the vertical dimensions of the jaws and alters the mechanical function of the joint. Stretching of the capsule, abnormal joint pressure, etc. will produce pain. Arthritis both rheumatoid and degenerative are attended by pain at the T.M. joint. Disharmony in the "occlusal relationship" is however the most common cause of pain at the T.M. joint.

Clicking, Cracking or Snapping Jaws Listening to joint function with a stethoscope is often very revealing. The most striking audible sound is that of clicking, cracking or snapping. If this occurs at the end of opening, it is usually due to a loose joint capsule which permits the condyle to ride up over the articular tubercle.

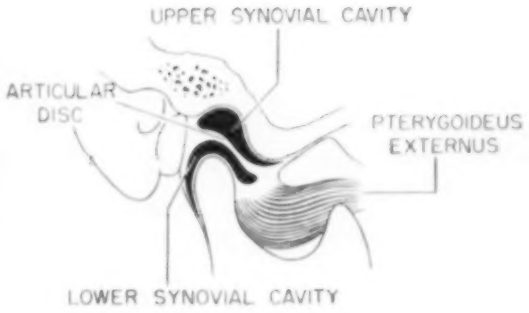


FIG. 3

This is a form of partial subluxation which may be painful or painless. If the clicking occurs during opening, "intermediary snapping", arthritis is the most likely cause. With faulty occlusion, joint snapping may occur when the teeth are firmly brought together. In this situation, the articular disk is held anteriorly through its attachment to the external pterygoid tendon.

Recurrent Dislocating Jaw This is an exaggeration of the first type of clicking jaw due to a relaxed capsule. Dislocation usually occurs during yawning, biting an apple, etc. The condyle rides entirely over the articular tubercle. The jaw locks in this position. The direction of muscle pull is altered by the new position of the condyle and now tends to increase the deformity. Reduction entails overcoming the muscle spasm, which may be severe, and lever-

ing the condyle back over the articular tubercle into the glenoid fossa. This is a well known maneuver in which the padded thumbs press down on the molars while the fingers pull up the symphysis of the chin. When the muscle spasm is marked, greater pressure can be applied if the patient lies on his back and the physician stands above the patient's head to perform the reduction. Several minutes of pressure will usually overcome most muscle spasm. However, general anesthesia is occasionally necessary. If the condition recurs frequently, specific treatment is indicated. A conservative course of internally wiring is recommended before an operation on the joint is performed. The injection of sclerosing solutions into the joint to tighten the capsule is unwise. Ankylosis of the joint may occur not only from the solution, but occasionally from an organized hematoma in the joint caused by the needle puncture.

T.M. Joint Ankylosis Almost all cases of T.M. joint ankylosis will have a history of previous infection or injury of the joint. Other less frequent causes include arthritis (especially rheumatoid) pericoronal infections of the lower posterior molars, previous injections into the joint, hysteria and tetanus. Extrinsic joint pathology may also cause joint ankylosis, e.g., depressed fracture of the zygoma impinging on the coronoid process, scar tissue in the cheek wall, adhesions between the coronoid process and the zygoma, space-occupying local tumors such as lymphoepithelioma. A careful history and an accurate evaluation of the joint movements are invaluable. Good x-rays of the joint taken at the extremes of its motion should be obtained. Laminographs, sinus and skull films may be indicated if the simpler tests are not confirmatory. Hearing should be carefully investigated.

Once a diagnosis is reached, treatment may be instituted. Conservative measures include physiotherapy and spring spreading devices to progressively open the jaws (a clothes pin is the simplest of such gadgets). If the patient gains a 2 or 3 cms opening he can lead a fairly normal life. Those who have no opening must subsist on a liquid diet and actually push the food between teeth. Tooth extractions to create a feeding hole may be indicated.

There are many operative procedures designed to correct joint ankylosis and intractable T.M. joint pain; arthrolysis or division of the inter-joint adhesions has not proved too successful. Arthroplastics utilizing a reformed condyle at the neck, plastic or metallic heads are recommended by some. Osteoarthroplasty is probably the most widely used corrective procedure. Depending on the particular technique this involves excising the condyle and neck and thus creating a flail joint. Jaw retrusion and open bite are the main complications of the operation.

Summary

Understanding the anatomy and function of the T. M. joint under normal and pathological conditions will enable the physician to better evaluate and advise his patient. Complaints related to the T. M. joint are often treated superficially for they fall in the border zones between medicine, dentistry and the subspecialties of each profession.

The Mechanism of Blood Coagulation

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Historical Development Experimental work on the coagulation of blood began three centuries ago.

The so-called pre-classical era (1666-1904). Malpighi observed in 1666 that there were strands of fibers that remained after a clot of blood was washed.[1] Later other workers tried to compare the clotting of blood to the clotting of milk to form rennin. In 1877, Hammarsten contributed work on fibrinogen and discovered that thrombin was necessary to coagulate this protein. Schmidt postulated that thrombin was formed from a precursor (named prothrombin by Pekelharing.) Later it was shown that calcium was necessary for coagulation.

Then in 1904 Morawitz postulated what is now considered the classical equations of Blood coagulation.

Prothrombin + Ca^{++} + thrombokinase → thrombin

Fibrinogen + thrombin → Fibrin

Between 1904-1934 little was done in the way of advancing the theories of blood coagulation. Heparin was thought to interact with prothrombin and then the prothrombin was liberated from the complex due to tissue thromboplastin acting on the complex.

In 1934 simple methods for quantitatively estimating prothrombin gave great impetus to the research work in blood coagulation and the discovery that a deficiency in Vit. K. led to a prothrombin deficiency. About this time, the discovery of Vitamin K and the discovery of the one and two-stage methods of prothrombin determination gave great impetus to the research on coagulation factors. How the lack of a readily available procedure for determining prothrombin hampered progress can be easily shown. In 1912 Whipple reported the absence of prothrombin in a case of melena neonatorum and the following year found that this clotting factor was diminished in a case of jaundice. Because of the difficulty in performing prothrombin determinations, work was retarded on this defect for many years. Finally in the 1930's using a one-stage prothrombin method prothrombin was observed to be diminished in jaundiced patients.

In this era two outstanding clinical contributions were the introduction of

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Vit. K. and Dicoumarol into therapy. The latter resulted from the studies of Link and his students on spoiled sweet clover hay. The elucidation of the structure of Vit. K1 and K2 by Doisy was important biochemically. However of far greater practical value was the discovery of heparin which could be used as an injectable preparation by the Connaugh Laboratories in Canada.

The past two decades have seen an increase in the amount of time and effort spent in elucidating the various factors involved in the clotting of blood. Along with this increased activity, there has arisen some confusion not only because of the complex terminology used, but also because it has become the tradition to label each factor with at least a dozen names. We will discuss the pertinent facts as they are known today.

Factors[2] which take part in the coagulation of blood are found in platelets, plasma, and serum. For blood to clot, thrombin is necessary. In order to have effective hemostasis, a large amount of thrombin must be produced. For the formation of this clotting agent at least five recognized primary substances are needed. They are: a platelet factor, thromboplastinogen, labile factor, calcium, prothrombin. These five factors coexist in blood but do not react because of the unreactive state of thromboplastinogen. Thromboplastinogen does not react even with a potent

Table I (from Stefanini, Am. J. of Med. 1953)

WHERE THE VARIOUS COAGULATION FACTORS ARE FOUND

a. **Platelets**
   1. Platelet thromboplastic factor
   2. Platelet accelerator 1 (factor 1)
   3. Platelet accelerator 2 (factor 2)
   4. Platelet factor 3 (anti-heparin factor)

b. **Plasma**
   Factors favoring the coagulation of blood:
   1. Plasma thromboplastic factor (thromboplastinogen, antihemophiliac globulin)
   2. Plasma throboplastic component (PTC)
   3. Prothrombin
   4. Calcium
   5. "Labile component" (labile factor, proaccelerin, plasma Ac-globulin)
   6. "Stable component" (proconvertin, Factor VII)
   7. Fibrinogen

   Factors opposing blood coagulation or taking part in the destruction of the formed clot:
   8. Anti-thromboplastin
   9. Antithrombin
   10. Albumin X (heparin co-factor)
   11. Profibrinolysin
   12. Antifibrinolysin
   13. Antifibrinolysokinase (fibrinokinase inhibitor)

c. **Serum**
   1. All factors found in plasma (with the exception of fibrinogen) in concentrations directly related to their utilization during the process of blood coagulation.
   2. "Serum accelerator" (accelerin, serum Ac-globulin)
   3. "Stable component" (convertin, SPCA), a more active form than in plasma?)
   4. Thrombin and metathrombin

Table II (from Stefanini, Am. J. of Med. 1953)

PLATELET FACTOR 1:

1. accelerates the conversion of prothrombin to thrombin
2. water-soluble; precipitated from solution by 50% saturation with $(NH_4)_2SO_4$
3. sediments following centrifugation at 32,000 r.p.m. for 30 min.
4. heat labile (53°)
5. non absorbed on $Ca_3(PO_4)_2$

PLATELET FACTOR 2:

1. accelerates the fibrinogen **thrombin**, fibrin reaction
2. water-soluble; does not precipitate from solution following centrifugation at 32,000 r.p.m. for 30 min.
3. heat stable
4. absorbed $Ca_3(P_4)_2$ gel and $BaSO_4$; can be eluted from them with sodium citrate.

PLATELET FACTOR 3: (probably platelet thromboplastic factor)

1. opposes the activity of heparin in the blood coagulation process
2. water-insoluble, suspendable in saline solution
3. relatively heat stable
4. non absorbed on $Ca_3(PO_4)_2$ gel or $BaSO_4$

PLATELET THROMBOPLASTIC FACTOR:

1. interacts with one or more plasma components to form active thromboplastin.
2. found mostly in platelets but also in other formed elements of the blood.
3. Water-insoluble, partly soluble in citrate phosphate buffer solution;
4. heat stable (relatively at 56°C)
5. precipitates following centrifugation at 32,000 r.p.m. for 30 min.
6. high phospholipid content; similar in chemical structure to placental thromboplastin.

extract of platelets. Only after it has been acted upon by thrombin, does it react with the platelet factor to form thromboplastin.

One may postulate that the following series of reactions occur:

1. Thromboplastinogen—thromboplastinogen A (activated)
2. Thromboplastinogen A± platelet factor = thromboplastin
3. Thromboplastin + labile factor + calcium + prothrombin = thrombin
4. Fibrinogen-fibrin
5. Fibrin + thrombin = fibrin. thrombin (adsorption)

In a study of a patient who suffered from congenital afibrinogenemia, Alexander[3] demonstrated that AHF (thromboplastinogen, or antihemophilic factor) was different than fibrinogen. AHF and fibrinogen are separated out in Cohn's fraction I. Attempts to separate the two and isolate them have been fruitless previously. However adding antihemophiliac and afibrinogenemic blood, one could cause coagulation to take place. However, it still has not been possible to separate them and characterize each one.

Enumeration Of Factors Which Take Part In The Process of Blood Coagulation Platelets[4] have assumed an increased role in the process of hemostasis and blood coagulation. They supply agents active in every phase of the clotting process. (See Table I) A. platelet thromboplastic factor which is indispensable to the activation of thromboplastin from an inactive plasma precursor (plasma thromboplastic factor or thromboplastinogen); B. platelet factor 1, which accelerates the conversion of

prothrombin to thrombin; C. platelet factor 2, which accelerates the fibrinogenfibrin reaction; D. platelet factor three opposes the activity of heparin. It is likely that platelet thromboplastic factor and platelet factor 3 are in effect the same factor. Increased heparin activity has been found in the plasma of patients with thrombocytopenia. Results obtained by means of heparin-protamine titration curves have been interpreted as indicating an increase of heparin in the circulating plasma, but may be attributed only to the delay in coagulation due to lack of platelets and possibly, deficiency of platelet factor 3.

Agglutination and lysis of platelets which follow discontinuity of the vascular wall and a lesion of the intima cause release of a vasoconstrictor. Bleeding time and probably capillary fragility appear related to platelet function. The importance of platelets in the process of hemostasis is indicated by the complex defect observed in thrombocytopenia, in which increased capillary fragility, prolonged bleeding time, delayed one-stage prothrombin time of plasma (due to deficiency of platelet factors 1 and 2, reduced utilization of prothrombin during clotting (deficiency and platelet thromboplastic factor), increased sensitivity to heparin in vitro and in vivo (deficiency of platelet factor 3), are found.

The plasma supplies a number of fairly well characterized factors. *Plasma thromboplastic factor:* this is also known as anti-hemophiliac globulin, thromboplastinogen. This protein is difficult to separate from fibrinogen which is precipitated in Cohn's fraction 1 with it. This component is necessary for the activation of thromboplastinogen. This factor disappears almost completely during the process of blood coagulation. This substance needs platelets and a surface to disappear.

Table III (a)—from Stefanini, Am. J. of Med. 1953

SYNONYMS OF VARIOUS FACTORS ACTIVE IN THE COAGULATION OF BLOOD

1. **Factors taking part in the activation of thromboplastin**
   - **Platelet thromboplastic factor:**
     - Thromboplastinogenase
     - Cellular thromboplastic component (TCC)
   - **Plasma thromboplastic factor**
     - Prothrombokinase
     - Plasmakinin
     - Antihemophiliac globulin
     - Thromboplastinogen
     - Thrombocytolysin
     - Thrombokatalysin
     - Thromboplastic plasma component (TPC)
2. **Thromboplastin (tissues)**
   - Thrombokinase
   - Cytozime
   - Thromboplastic protein
   - Thrombokinin
3. **Factors involved in the conversion of prothrombin to thrombin other than Ca and thromboplastin**

The factor is stable in a lyophilized or frozen state for at least six months.

Plasma thromboplastic component[5, 14] (PTC) Deficiency of this factor causes a hemophiliac-like condition but when the plasma of a hemophiliac is added then clotting will take place. This new factor is responsible for the disease called "Christmas Disease." Prothrombin consumption is reduced when the activation of thromboplastin is reduced. Prothrombin consumption, as determined with the available techniques, is significantly reduced when the activation of thromboplastin is impaired, as in hemophilia (deficiency of plasma thromboplastic factor) or in thrombocytopenia (deficiency of platelet thromboplastic factor). It should be concluded that PTC is necessary in addition to the other two factors AHF, Plasma-Ac globulin for the activation of thromboplastin under physiologic conditions.

Prothrombin In the past two decades much work has been done on the relationship of prothrombin and related factors to the mechanism of blood coagulation. Much of this work has revolved around the identification and isolation of factors that allow prothrombin to become active and form thrombin.

Prothrombin is a sulfur containing glycoprotein, is recovered in Cohn's fraction III_2 and its mobility is that of an α 1 globulin. It is water soluble and relatively heat stable. Prothrombin is very stable in plasma which has been frozen or lyophilized immediately after collection. In citrated plasma, its concentration and activity remain constant for at least 21 days.

Prothrombinogen[8] is considered to be an inactive precursor of prothrombin and may be related to stable component. Quick has postulated what he calls the prothrombin complex. In 1943 Quick found that when he mixed stored oxalated plasma with a low prothrombin activity and blood from a dicoumarolized animal (low prothrombin concentration) the resulting mixture had a prothrombin potency greater than normal. It was[1] concluded that prothrombin was composed of two factors. One of these was destroyed by storage and one was destroyed by dicoumarol. At the same time Owren in Oslo had a patient with hypoprothrombinemia. He found that when oxalated normal plasma was added that the prothrombin activity became normal. He concluded that there was another factor, which he called factor V that was a new clotting principle. Apparently this factor was identical with that discovered a year previously by Quick.

Labile Component (proaccelerin labile factor plasma Ac-globulin) is indispensable to the conversion of prothrombin to thrombin. It is a water soluble globulin. When Ca is absent, this agent is extremely labile on storage.

When blood begins to coagulate or as soon as thrombin forms, Serum Ac-globulin develops from labile component. Serum Ac-globulin is similar to plasma-Ac-globulin.

In the original study, Quick found that the concentration of labile factor was much higher in rabbit and dog plasma than in human plasma. Both he and Stefanini determined that rabbit plasma contained 50 times and dog plasma 10 times as much labile factor as human plasma.

One school of thought led by Seegers, Fautl and Owren consider the new fac-

Table III (b)

"LABILE COMPONENT"	"STABLE COMPONENT"
Thromboqene	Co-factor V
Component A of prothrombin	? Component B of prothrombin
Factor V → factor VI	Prothrombin accelerator
Accelerator factor	Prothrombin conversion factor
Labile factor	Prothrombin convertnig factor
Co-factor of thromboplastin	Co-thromboplastin
Plasma Ac-globulin → serum Ac-globulin	Plasma precursor → serum prothrombin conversion accelerator (SPCA)
Proprothrombinase → prothrombinase	Proconvertin → convertin
Prothrobinagenase → thrombinogenase	
? prothrombinokinase → thrombokinase +	
Plasma prothrombin conversion factor → serum accerator	
Proaccelerin → accelerin	

Table III (c)

Factor VII	Kappa factor (in chicken)
? prothrombinogen (inactive prothrombin)	

tor as an accelerator while Quick believes that this agent reacts stoichometrically in the reaction.

It was shown that labile factor did not accelerate the conversion of prothrombin to thrombin. The prothrombin time was not shortened by adding a large excess of labile factor to human oxalated *plasma*. The source of confusion that had led to the conclusion that labile factor was an accelerator came from the fact that the experiments were either done in glass or silicone coated tubes. When one allows normal oxalated plasma to stand in glass the prothrombin time gradually increases. When one adds a small amount of deprothrombinized rabbit plasma containing a large excess of labile factor then the mixture has a prothrombin time of 8 seconds which is shorter than the prothrombin time of normal plasma which is 12 seconds. If one takes oxalated plasma which is stored in silicone and adds an excess of labile factor then the prothrombin time is restored to the original 12 seconds. Quick and Stefanini have postulated that prothrombin occurs in plasma in two forms, an inactive precursor (prothrombinogen) and an active prothrombin. For the formation of prothrombin a rough surface such as glass is necessary.

Stable Component[7] (proconvertin, plasma precursor → serum prothrombin conversion accelerator (SPCA, Factor VII)). This component supposedly accelerates the conversion of prothrombin to thrombin. However, unlike the labile components this does not shorten the clotting or prothrombin time of aged plasma. This factor is found in almost equal concentrations in plasma and serum and evidence is lacking that it has any appreciable effect on blood

coagulation. It is believed by some that stable component may be a prothrombin derivative. Alexander and others have studied cases where patients who are bleeding and have prolonged prothrombin times may be corrected by the addition of stable component in *vitro* and the addition of serum in *vivo*. Serum is poor in prothrombin and labile component but stabile component has almost the same concentration in plasma as in serum, therefore addition of normal serum in vivo to patients with SPCA deficiency will return their prothrombin times to normal. SPCA and labile component have different ultraviolet absorption peaks. Also the serum accelerator deteriorates after aging while SPCA does not.

Fibrinogen—is a globulin with a molecular weight of 400,000. It is the most unstable protein in blood. The protein is present in Cohn's fraction I_2 and when lyophilized may be kept indefinitely. Gelification of fibrinogen to form fibrin does not involve any profound change. Fibrin and fibrinogen are chemically identical, have identical x-ray diffraction patterns and antigenic properties. Most people feel that the fibrinogen molecule undergoes a polymerization with binding of the individual fibrinogen molecules by SH groups.

In addition to the above-mentioned factors which favor blood coagulation plasma also contains factors which hinder the clotting of blood and substances which may lyse the formed clots.

Theories Of the Normal Mechanisms of Blood Coagulation As mentioned above Morawitz's original theory envisaged blood coagulation as occurring in two separate steps. Today it is felt that there are three major steps to the formation of a blood clot.

Most investigators nowadays feel that 1), activation of thromboplastin is a separate preliminary phase in the formation of thrombin 2) there are other factors besides thromboplastin and calcium, which take part in the conversion of prothrombin to thrombin.

3) serum contains agents accelerating the conversion of prothrombin to thrombin;

4) The formation of thrombin during the coagulation of blood proceeds as an autocatalytic reaction.

Today blood coagulation is visualized in a three step process.

1), the activation of thromboplastin 2), conversion of prothrombin to thrombin
3), formation of fibrin.

Active thromboplastin is found in water and alcohol extracts of human tissues, particularly lung and brain. The water-soluble substance is a relatively heat-stable lipoprotein. The alcohol extract of tissue also exhibit thromboplastic activity probably due to acephalin.

In the circulating blood an entirely different situation exists. Evidence is increasing to support the view that thromboplastin is found in plasma as an inert precursor and that its activation (which occurs at the time that the vascular tree is insulted) requires the interaction of a plasma factor (Plasma thromboplastic factor, thromboplastinogin, antihemophilic globulin) and a platelet factor (platelet thromboplastic factor). These have been discussed above. It was thought previously by many investigators that this interaction was an enzymatic reaction of the platelet factor in the plasma factor or vice-versa. The resultant being lysis of the

platelets to liberate platelet thromboplastic lipoprotein.

Shinowara[5] has shown that platelet lipoprotein and antihemophiliac globulin together constitute a factor identical with tissue thromboplastin in respect to prothrombin activation. He believes that the AHF and platelet lipoprotein interact stoichometrically.

Thus in the activation of thromboplastin platelets or platelet lipoprotein and antihemophiliac globulin assume a primary position. Also AHF must apparently react a foreign surface before it can react with platelet lipoprotein. A new factor was introduced when PTC was discovered a deficiency of which is responsible for an abnormally low utilization of prothrombin during clotting.

It is now generally believed that there is another factor, labile factor, besides thromboplastin and calcium which are involved in the second phase, the production of thrombin from prothrombin. Stable component also is almost universally gaining acceptance. Whether or not these are stoichometoric or enzymatic reaction can be proven either way almost at will. For example:

In the first instance where the reactions are thought to be enzymatic, the investigators believe the prothrombin molecule to contain all the necessary components to produce thrombin. (4) The accessory factors are believed to speed the reaction in an enzymatic fashion. On the other hand, the other reactions would tend to infer that prothrombin, thromboplastin, calcium and labile factor would of necessity be present in quantitative proportions before thrombin can be formed. Clinically, a marked deficit in any one of these factors below a critical level will in most cases produce hemorrhage.

There is no doubt that $\left(\begin{matrix}\text{thrombin} \\ \text{fibrinogen} \rightarrow \text{fibrin}\end{matrix}\right)$ is an enzymatic reaction. Thrombin can clot approximately 100,000 x its weight in fibrinogen. Calcium is not absolutely necessary for this reaction but its presence greatly enhances the activity of thrombin.

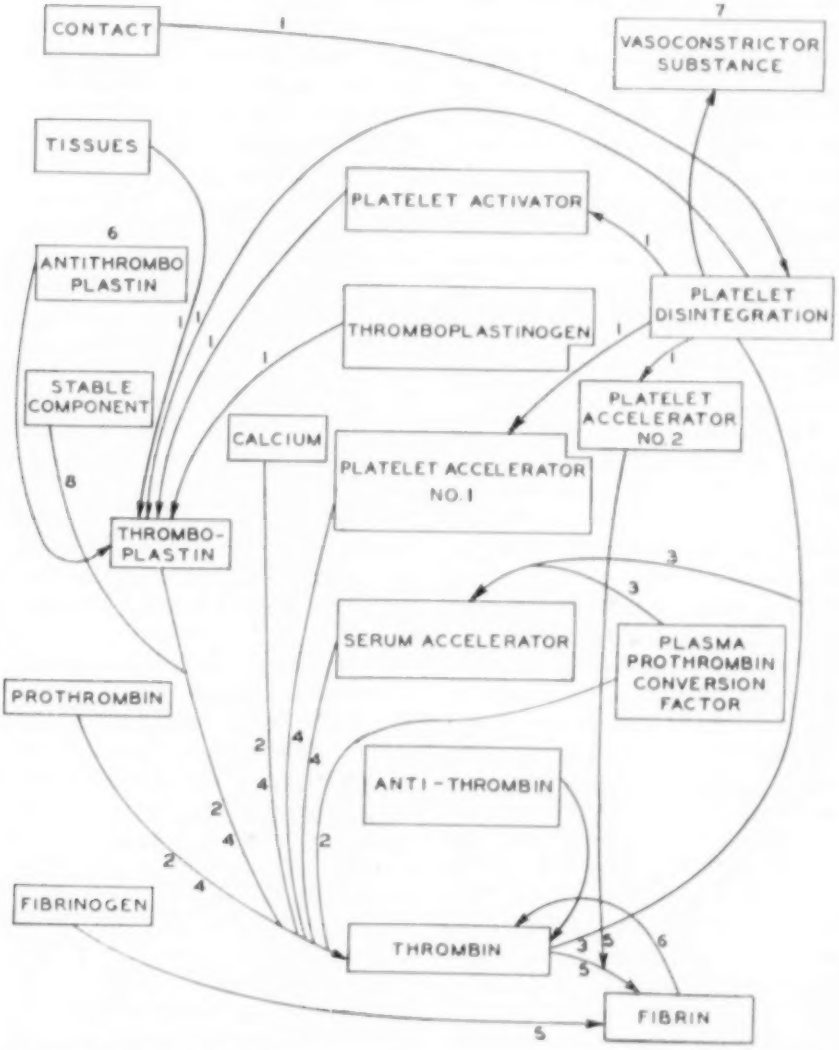
Without going into many different and varied theories we will discuss the fundamental conclusions subscribed to by all authors.

A), All agree that agglutination or disintegration of platelets represents the

A. ENZYMATIC	B. STOICHOMETRIC
1. thrombin does not contain thromboplastic material or ionic calcium (but may contain bound calcium.)	1. the concentrations of available thromboplastin and of calcium are the limiting factors in the amount of prothrombin which can be converted to thrombin.
2. the molecular weight of thrombin is smaller than that of prothrombin.	2. labile component is utilized quantitatively in the formation of thrombin. Serum accelerator evolving at the same time.
3. thrombin evolves slowly but spontaneously in a solution of purified prothrombin in 25% sodium citrate.	3. no thrombin can apparently evolve in a mixture of prothrombin thromboplastin and calcium in the absence of labile component.
4. the stable component is probably not utilized during the process of blood coagulation.	

initial step in the coagulation of blood. It initiates the action of activation of thromboplasin. It supplies a vasoconstrictor substance which causes a prolonged, generalized state of vasoconstriction. B), One or two factors besides thromboplastin and calcium are necessary for the optional conversion of pro-

Table IV—Theory of M. Stefanini



thrombin to thrombin. C). Fibrin plays an active role in blood coagulation. In one instance it absorbs thrombin onto its surface and checks the formation of this enzyme. On the other hand it probably labilizes platelets, liberates thromboplastin and contributes to the continuation of the autocatalytic process. All investigators agree that there are two physiologic anticoagulants, antithromboplastin and antithrombin.

Stefanini divides the process of blood coagulation "into' a 'slow phase' and an 'accelerated phase'." The latter phase is due to the initiation and continuation of the antocatalytic reaction. The slow phase initiates when platelets disintegrate and ends with the formation of small amounts of thrombin, the accelerated phase initiates with the activation of the accelerator system and ends with the conversion of fibrinogen to fibrin.

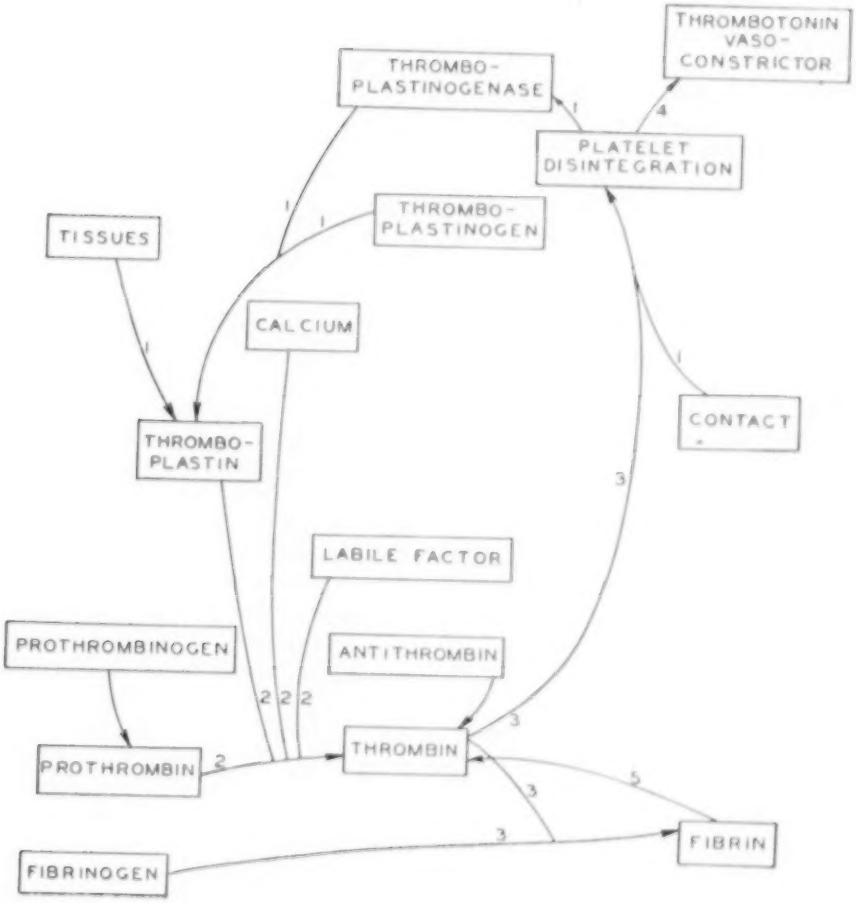
The first fundamental step in the entire process, the agglutination of platelets, follows any lesion involving the vascular endothelium. Platelet disintegration determines release of an agent (platelet activator = platelet thromboplastic factor) which, reacting with a plasma component (thromboplastinogen = plasma thromboplastic factor) determines formation of thromboplastin. It is possible that platelets may release thromboplastin directly but, in any case, in minimal amounts. Prothrombin, thromboplastin, calcium, plasma prothrombin conversion factor (labile component) and stable component react to form a small amount of thrombin. Once thrombin has been formed, the plasma prothrombin conversion factor is activated to "serum accelerator." Prothrombin, calcium, "stable component", thromboplastin, "serum accelerator", interact in the course of the accelerated phase of the coagulation process, which now proceeds at increasing speed. Once enough thrombin has been formed, it promptly converts fibrinogen to fibrin. Thrombin itself is probably responsible for the autocatalytic mechanism of blood coagulation. How thrombin brings about "activation" of the "labile component" to "serum accelerator" has already been described. Thrombin also produces clumping and disintegration of platelets at the site of its formation; this has been shown both by direct and indirect experiments. When platelets are lysed or "labilized", more thromboplastin procursor is liberated and an autocatalytic reaction is initiated.

This type of reaction is very efficient and blood coagulation will take place when the prothrombin time of the plasma is 1/5 the normal concentration. The mechanism that checks the formation of the clot is the fibrin thrombin adsorption and the presence of an antithrombin. It appears that the antithrombin is the most important part of the controlling mechanism. The substance that is formed when antithrombin and thrombin combine is called metathrombin.

Metabolism of Coagulation Factors

Most evidence indicate that prothrombin, labile factor, stabile factor and antihemophiliac globulin are produced in the liver. Vit. K. and other nutritional factors (Brewer's Yeast factor, liver extract) are apparently necessary for the synthesis of prothrombin and stable component. The various factors deteriorate quickly when they are out of the body and it is necessary to give fresh serum or plasma almost immediately after blood letting to gain any appreciable value. Fibrinogen survives

Table V—Theory of Armand J. Quick



about 4 days, within the recipient after it has been transfused. Prothrombin about 1-1/2 days to 3 days. Labile and stabile component disappear within 1/2 to 1 day after transfusion. AHF disappears within 12 to 15 hours. These factors may be kept from deteriorating by lyophilizing them. Indeed, AHF is prepared commercially now and fresh plasma is no longer a necessity in hemophiliac therapy.

Some Disease States with Abnormal Coagulation Mechanisms

Hemophilia is a well known disease which as mentioned above is caused by a hereditary deficiency in thromboplastinogen (AHF) and is promptly treated by the use of fresh plasma or lyophilized

plasma. There are variations in the hemophiliac state. One of the most useful tests in determining how severe a hemophiliac is to compare a hemophiliac's serum prothrombin time with a normal prothrombin time.

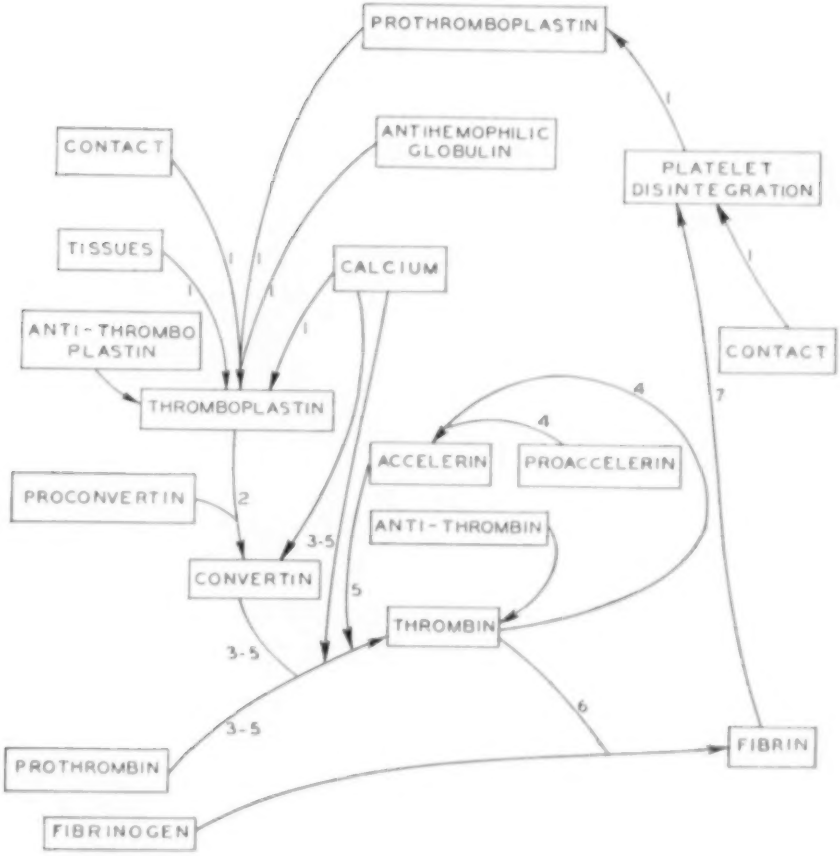
Just as a plasma prothrombin time of 12 seconds may be interpreted to mean that the concentration of free prothrombin is normal, so a serum prothrombin time of 8 seconds means that almost no prothrombin becomes consumed during coagulation. Usually the hemophiliac with a serum prothrombin time of 8-10 seconds is a severe bleeder while one with a prothrombin time of 12-14 seconds is a mild bleeder. Hemophiliacs retain their prothrombin consumption their entire lives. Indeed a transient improvement in the prothrombin consumption may be seen when for some reason these people develop hypoprothrombinemia. Hemophilia is a sex-linked disease only affecting males.

As far as treatment is concerned there are several important things to remember. First of all, stromboplastinogen deteriorates easily upon standing and old blood or plasma contains small amounts. Secondly, one must not give too little blood or plasma at one time. One must give a large plasma transfusion in the neighborhood of 500-1000 cc of fresh plasma to significantly elevate the thromboplastinogen level. Indeed, 5000 cc of whole blood given slowly over a four or five day period cannot compare in efficiency with 500 cc of fresh plasma given in a 2 or 3 hour period.

There are other disease states similar to hemophilia but which lack other factors. One of these diseases is called "Christmas Disease" after the name of the British patient who was shown to lack the CF factor. This is also a hereditary disease but apparently can occur in both males and females. The deficiency can be corrected by adding plasma from a normal or hemophiliac patient. Like hemophilia, there are mild bleeders with "Christmas Disease" as well as severe bleeders. In Aggeler's original paper he designated the factor responsible as PTC (plasma thromboplastic Component) which is believed to be the same as CF or Christmas factor.

Thrombocytopenic Purpura Another disease state of importance is the Thrombocytopenic Purpuras. Here the basic defect is a lack of platelets. More recently it has been shown that platelet agglutinins are responsible for the lack of platelets. Evans and his associates were probably the first to demonstrate a platelet agglutinating factor in the serum of some patients with idiopathic thrombocytopenia purpura. Stefanini worked extensively on a patient with chronic idiopathic thrombocytopenic purpura. This patient was shown to have a high titer of platelet agglutinins. Platelets injected into this patient disappeared rapidly. When this patient's plasma was injected into normal recipients, the latter developed thrombocytopenia purpura and degenerative changes in the megakaryocytes. Observations were also made on recipients who had splenectomy performed indicated that these people had less of a thrombocytopenic effect than recipients who retained their spleens. Recently studies have been performed by Harrington which show the existence of platelet types similar to blood groups. He believes that at least three types may exist. Harrington believes that there are two types of

Table VI—Theory of Owren



neonatal thrombocytopenia. One is the result of the transmission across the placenta of maternal platelet auto-agglutinins when the mother has previously had thrombocytopenia and the baby then has thrombocytopenia which remits within a few weeks. He also believes that there is another type of neonatal thrombocytopenia in which the mother has developed iso-agglutin for the baby's platelet similar to RH iso-immunization. In these cases, the mother does not have a thrombocytopenia but the babies have transient thrombocytopenia.

Increased capillary fragility is one of the usual accompaniments of thrombocytopenia. The pathogenesis of this increased fragility is about as obscure as that of the thrombocytopenia.

Speculations concerning thrombocytopenic purpura are in order. The spleen

may be the site of formation of platelet agglutinins. In some patients it may be the major or only source of these antibodies.

In other patients, the titer of agglutinins and the thrombocytopenic effect of the plasma will be unchanged by splenectomy. The spleen may be concerned with removal of sensitized platelets from the circulation. In this respect it may perform much the same function in regard to platelets as with spherocytic red cells in some patients with hemolytic anemia. Finally, the spleen may secrete a substance which interferes with the maturation of megakaryocytes and the release of platelets from the marrow.

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"MEDICAL TEASERS"

A challenging crossword puzzle for the physician

page 41a

Clinico-Pathological Conferences

New York University-Bellevue Medical Center Post Graduate Medical School, Department Of Medicine at Bellevue Hospital, Fourth Medical (N. Y. C.) Division

PATIENT A. G.

A 47-year-old white female was admitted to Bellevue Hospital on 1/31/53 because of purpura and scleral icterus.

The patient had been in good health until 1949 when she first noticed that she bruised easily and then later on in the year developed purpura on the legs. In March 1950 she experienced weakness and severe throbbing headaches. Nosebleeds, which were difficult to stop, appeared in April of 1951. Weakness increased and fever of 102-103° developed. Purpura increased markedly and the patient was admitted to Queens General where she was treated with ACTH and transfusions. A splenectomy was performed in June 1951. She was readmitted to Queens General in July because of recurrent purpura and hematuria. Between August 1951 and July 1952 there were five admissions to Bellevue necessitated by progressive purpura and other bleeding manifestations. In July 1952 she was first told of diabetes "due to cortisone".

Since the last admission she had been followed in the clinic. She had 5-6 nosebleeds, which were treated with thromboplastin packing, hemoptysis on several occasions, streaks of red blood on the stools, and blood clots in the oral cavity. For a few days prior to admission she had noted icteric sclerae, anorexia, weakness, polydypsia, and polyuria.

At the time of admission she was receiving cortisone 50 mgm. Q. I. D., insulin, 50 u PZI O.D., a salt-free low caloric, diabetic diet, and vitamin supplements. There had been no blood transfusions for at least one year.

Physical examination on admission revealed a well developed obese white female with "moon facies" and "buffalo hump". B.P. 130/80, PR-VR-72, Resp. 20, Temp. 99.6. There were many purpuric spots over the torso and extremities, several telangiectasiae and one spider angioma on the bridge of the nose. The sclerae were icteric. The oral and nasal mucosa revealed petechial hemorrhages. There were medium moist

rales at the right base. Examination of the heart revealed regular sinus rhythm, A2>P2 and a soft systolic murmur at the base. The liver was percussed 2 fingers below the right costal margin. There was 1+ ankle and pretibial edema.

The cortisone was reduced to 100 mgm. O.D. and PZI insulin 50 u. O.D. was continued. The patient received several platelet extract transfusions and experienced a shaking chill, low back and epigastric pain, and a fall in blood pressure (60/38) after one such transfusion.

Severe nosebleeds occurred and bloody stools were passed. On 2/14 the patient presented a shock-like picture with B.P. of 58/40. Since AB positive blood was not available, AB negative blood was given. Her hemoglobin at this time was 9 gm. She received 2000 cc. of blood in 24 hours with a fall in hemoglobin to 7 grams.

On 2/17 it was noted that patient had marked icterus. Her hemoglobin became stabilized at 10 grams with cessation of rectal bleeding. Cortisone was again increased to 200 mgm. O.D. on 2/20.

The patient slowly regained her strength and the purpura diminished. On 3/4/53 cortisone was changed to hydrocortone 20 mgm. QID. Because of reappearance of bleeding tendency, the dose was increased to 160 mgm. a day on 3/11/53. With the development of edema and increase in the severity of her diabetes, the drug had to be reduced again to 20 mgm. QID. A course of typhoid vaccine, O.1 cc. O.W. for three weeks, was given.

There was little difference in the quantity of glucose spilled in the urine whether the patient received insulin or not. There was a glycosuria of about 40-60 grams of glucose daily. It was felt that the patient was developing antibodies against insulin but, before studies of insulin senstivity could be done, the patient requested discharge. She was discharged on 5/16/53 to be followed in the Hematology Clinic with instructions to continue the cortisone 100 mgm O.D. and PZI, 50 u.O.D.

Date	Hg.	RBC	WBC	Platelets	Retics	FBS	A/G	Chol/Est.	Alk. P'se	Bile	Urobil-'gin	Ict. Ind.	Na	K
2/2	14.5	4.85	16600	15000		386	4.0/3.7	305	10.9	0	1-40	33	146	4..
2/16	9.0	2.91	16000	10000		376				3+	1-20			
2/24	11.5	3.52	18000	28000	9%					2+	1-80			
3/9	11.5	4.08	13700	18000		259	3.1/3.1	188/50	11.5	0	1-20	15	139	4
4/5	11.	3.84	11150	17000		200	4.0/2.7		18.4			15		
5/13	11.	3.69	13600	15000			3.8/3.1	236/84	13.5	0	1-10	12	136	4

Summary of laboratory data on admission of 1/31/53 is as follows:

Urinalysis 1/31/53; 1025; 1 + alb.; 4 + glucose; no cells.

CBC 2/2/53; Hgb. 14.5; RBC 4.85; WBC 16,600; Trans 7.

ESR 5; Hct. 52%; Polys 69; Lymphs 23.

Mazzini 3 +; Creatinine — 0.75; Mono 1.

Wassermann — 1 +; BSP retention — 45%.

The patient was seen in the Hematology Clinic at weekly intervals until 8/21/53 when she was readmitted because of gross bleeding (hematuria,

epistaxis, and tarry stools), which occurred after chills and fever.

On physical examination she appeared critically ill with purpuric areas scattered throughout the body. BP 80/40 PR 140/min. Temp. 105. There was evidence of recent bleeding from the nasal, oral, and auricular orifices. The lungs revealed medium moist rales at both bases. Examination of the heart revealed R.S. Tachycardia (140/min), P2>A2, and a questionable apical gallop. The liver was palpable 3 fingers below the right costal margin. There was 2+ ankle edema.

The patient received AB+ blood transfusions, 200 mgm. cortisone O.D., and penicillin. Several hours after admission she became semi-comatose. The bleeding continued in spite of an increase of the daily cortisone dosage to 300 mgm. on 8/23. There was no acetonuria. With increasing jaundice the state of coma deepened. It was decided to withhold further blood transfusions because of the possibility of transfusion reaction. I.V. fluids with KCL were given. Urinary output was fairly good, 1000 cc. in 24 hours. On 8/26/53 the patient expired.

Laboratory data included the following:

Hgb 8/21 10 grams
Urinalysis — grossly bloody, 3+ alb, 1+ glucose.
Hgb 8/22 14.3
" 8/23 10.
" 8/24 10

CBC 8/24; Hgb. 10; RBC 3.3; WBC 20,350. Trans 50; Polys 41; Lymphs 6; Myelocytes 3.

Na 113; K 3.73; Cl 91.2.

Pathological Findings

Autopsy revealed widespread hemorrhage. There was cutaneous purpura and petechiae were found on serous surfaces, endocardium, and epithelial surfaces. There were areas of hemorrhage in perirenal adipose tissue. The stomach, esophagus, and parts of the small and large intestines were filled with clotted blood. The diagnosis of *thrombocytopenic purpura* cannot be made by anatomic findings, but this patient's severe *purpura*, *petechial hemorrhages*, and *melena* were quite consistent with that disease. The autopsy was performed six days post-mortem during the summer. The consequent severe autolysis limited the value of histologic observations. However, it was possible to ascertain that the bone marrow contained a normal number of megakaryocytes.

The spleen had been removed surgically at another hospital. The liver was enlarged (2100 grams). It showed the irregular nodularity of *portal cirrhosis;* in addition, there was fairly marked fatty change. The patient's rather marked jaundice was probably due in part to her cirrhosis, and in part to absorption of pigment from the extensive areas of hemorrhage.

Since the patient had had many transfusions, the possibility had to be considered that her cirrhosis was part of the syndrome of post-transfusion hemochromatosis. Small deposits of hemosiderin were found in the liver, but it was impossible to determine whether any of it was in bile-duct epithelium

(a characteristic finding in hemochromatosis). Since the development of cirrhosis after repeated transfusions is thought to result from the presence of large amounts of hemosiderin in the liver,[1] it seems likely that this patient's *post-transfusion hemosiderosis* and her cirrhosis were independent diseases.

The patient's adrenals were markedly atrophic. This was undoubtedly the result of cortisone therapy.[2]

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PATIENT C. S.

A 55-year-old white male was admitted to Bellevue Hospital on 8/10/53 because of shortness of breath and swelling of the legs.

The patient had been in good health until May 1952 when he suddenly developed shortness of breath, vomiting, cold sweat, and syncope while at work. He was admitted to Metropolitan Hospital where several electrocardiograms were taken. After 4 days he signed himself out of the hospital because operation was suggested for "cystic goiter." He was then treated by a private physician with bed rest and pills and in a few weeks returned to work, feeling perfectly well.

In February 1953, while at work in a brewery, the patient experienced the sudden onset of substernal oppression, diaphoresis, and dyspnea. Following a nitroglycerin tablet and an I.V. injection, the symptoms disappeared. The company physician told him that he had "heart disease" and advised several weeks of bed rest. At home the patient took one small yellow pill daily and three small white pills daily for "the high blood pressure."

After 3 weeks of rest, the patient returned to an easier job and did well until some 6 weeks before admission when he began to notice increasing shortness of breath and swelling of the legs. In spite of mercurial injections twice a week and yellow and white pllis, the symptoms progressed and necessitated his admission to the hospital.

There was no past history of rheumatic fever, or veneral disease. The patient stated that he had heat intolerance and was "quite nervous." There was no history of diarrhea.

Physical examination revealed a well nourished male appearing acutely ill with orthopnea. B. P. 160/30/0 P.R. = 108/min. R.R. = 24/min. Temp. 100°. The pupils reacted to light and accommodation. Palpation of the neck revealed a slightly diffused enlarged thyroid gland. There were scattered crepitant rales at both lung bases posteriorly. Examination of the heart revealed: PMI in V ICS about 3 cm. lateral to MCL., RST with VR = PR = 108, a loud blowing diastolic murmur

at the aortic area, transmitted down the left sternal border. A soft, nontender liver was palpable 4 fingers below the right costal margin. There was 4 + bilateral pretibial and ankle edema. The reflexes were physiological except for absent ankle jerks. The Romberg was negative.

The laboratory data included the following:

Urinalysis; 1019, 3 + alb, neg. sugar.

Hgb. 15 gm.; RBC 5.2; WBC 7450; Trans. 12.

ESR-3; Hct-52; Polys 76; Lymphs 7; Mono 5.

Mazzini 4 +

Venous Pressure (8/11/53), 200 mm.

Lumbar Puncture (8/14)—clear fluid, 1 + pandy 347 cells/cu mm. (lymphocytes).

EKG (8/11)—clockwise rotation. Sinus tachycardia, occasional premature auricular contractions.

On 8/11/54 1 mgm. of Digoxin was given and an injection of Thiomerin with a 5 lb. weight loss. The Digoxin was continued on 8/12, 0.5 mgm. in the morning and 0.5 mgm in the evening. The same schedule was repeated on 8/13 and 8/14. On 8/15 he received 0.25 mgm. in the morning. At this time auscultation of the heart revealed soft to and fro systolic and diastolic murmurs at the base and a soft high-pitch systolic murmur and a short soft diastolic murmur at the apex. The characteristics of the apical diastolic murmur were not described.

On 8/16 the patient was found to have a tachycardia of 150/min. There was marked distention of the neck veins. The EKG showed: no evidence of auricular activity, premature ventricular contractions in the form of coupling and longer runs of PVC's constituting a ventricular tachycardia. One half hour after 250 mgm. of Pronestyl, the ventricular rate was 88/min. with occasional premature beats. At this time B.P. was 160/40/0 and temperature was 101. Two more doses of Pronestyl were given at 4 hour intervals.

On 8/17 the temperature was 104°. There were many coarse rales throughout both lung fields. Penicillin therapy was instituted. On the evening of 8/17 the B.P. fell to 100/0 and the patient expired.

Pathological Findings

At autopsy the patient's heart was hypertrophic (620 grams) and dilated. The aortic valve commissures were separated and the leaflets were thickened and rolled. These are the classical changes of *aortic insufficiency* due to *syphilis*. Two small "insufficiency pockets" were found in the endocardium of the left ventricular outflow tract. The cardiac dilation indicated cardiac decompensation; there was severe chronic passive congestion of the lungs and liver. The coronary ostia were found above their usual positions and they were considerably narrowed. The change in position is due to aortic dilation associated with *syphilitic aortitis*. The ostial narrowing is probably a result of scarring in the media of the aorta surrounding the ostia, as well as fibrous plaque formation in the intima—another change associated with

syphilitic aortitis. The characteristic "tree-bark" wrinkling of the aortic intima was found. The coronary arteries distal to their orifices showed only mild atherosclerosis, without narrowing.

No myocardial infarct, recent or healed, was found; however, there was focal fibrosis of the myocardium, a lesion due to anoxia. Since there was no significant coronary atherosclerosis, this fibrosis, as well as the clinical angina, must be attributed to the syphilitic narrowing of the coronary orifices.

Histologic examination of the aorta was of great interest. The usual medial scars, with loss of elastic tissue, and fibrous thickening of adventitia and intima were noted. In addition, however, there were large aggregates of plasma cells, lymphocytes, and mononuclear cells in the media, particularly near the intima. Many of these cellular aggregates contained an appreciable number of neutrophils, and many dilated capillaries. The inflammatory cells were associated with small foci of necrosis and, probably, edema of the aortic wall. Such marked inflammation is quite uncommon in late syphilitic aortitis; it suggests that the infection was still active. The presence of an appreciable number of acute inflammatory cells is not characteristic of syphilis. It has, however, been reported in the very few reported anatomic investigations of the *Jaresch-Herxheimer* reaction to antispirochetal therapy.[1, 2] The fact that this patient went into shock within a few hours after the initial administration of penicillin is also consistent with the Herxheimer reaction. This occurs, characteristically, within six to twelve hours after the start of penicillin therapy.[3] The acute inflammation persists for less than 18 hours after onset;[1] this patient died within that period. Whether death can be attributed to this reaction is not certain. If the reaction was responsible for the patient's death, the mechanism would probably have been acute myocardial anoxia, due to further narrowing of the coronary orifices. Unfortunately, no sections of the orifices are available, but it is not improbable that the changes found in the rest of the aorta were present there also.

No anatomic evidence of acute myocardial infarct was found, but such evidence does not appear for 6 to 24 hours after the onset of the anoxia leading to infarction.[4] In addition to cardiac failure and, possibly, a Herxheimer reaction, this patient's death might have been due to the massive *lobular pneumonia* which was found in the right lower lobe of his lung; this was associated with *fibrinous pleuritis*.

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Cases presented from the wards of the Fourth Medical Division, Bellevue Hospital, Dr. Charles Wilkinson, Dir.

OPHTHALMOLOGY

RALPH I. LLOYD, M.D., F.A.C.S.*

Treatment of Trachoma with Erythromycin

R. R. Button (*American Journal of Ophthalmology*, 39:223, Feb. 1955) reports 21 cases of trachoma treated with erythromycin. All of these patients were Navajo Indian children on the Navajo reservation. Ten of the children had previously been treated with sulfadiazine given by mouth and sulfathiazole ointment applied locally for twelve days, without showing any improvement. In all cases erythromycin was given by mouth in a dosage of 2 to 3 mg. per pound of body weight at four to six hour intervals. No local applications were used. Blood counts were made weekly and the patients were carefully observed for signs of toxicity, but no untoward reactions occurred. The criteria of cure were based on the changes in the cytology of the conjunctiva, rather than on clinical evidence of improvement, as it has been found that in many cases of trachoma, there is clinical evidence of improvement or cure under drug therapy, but the cytology of the conjunctiva is unchanged, indicating that only a secondary infection has been cleared. In the study of conjunctival cytology under erythromycin treatment, it was found that the inclusion bodies were usually first to disappear, then the follicle cells, macrophages, lymphocytes and plasma cells, in the order named. In 4 cases of Stage I trachoma (MacCallan classification), the cytology of the conjunctiva became negative for trachoma after an average of four days' treatment with erythromycin; in 7 cases of Stage II, after an average of 4.9 days' treatment; in 10 Stage III cases, after an average of 5.7 days' treatment. It was found, however, that there might be a recurrence unless treatment was continued for several days after the cytology had become normal. At least twelve days' treatment is recommended, and has given satisfactory results. A footnote to this article states, that since it was submitted for publication, the 21 patients have been followed up for eight months, and none has shown a recurrence; and that 4 additional cases of Stage III trachoma cases have been treated with erythromycin, with return of the conjunctival cytology to normal within a week.

Lloyd

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COMMENT

Trachoma has been eliminated from most of the U.S., but this contribution indicates that a new and effective remedy is available.

R. I. L.

Carbomycin in Ocular Infections

J. A. Halliday and H. L. Ormsby (*American Journal of Ophthalmology*, 39:51, Jan. 1955) present a study of the value of carbomycin in ocular infections. They first tested the *in vitro* sensitivity to carbomycin of 126 strains of *Staphylococcus aureus* isolated from ocular infections. It was found that all these strains were sensitive to 1.5 μg./ml of carbomycin, but only 16.5 per cent were sensitive to 0.5 μg./ml. A series of 50 cases of external ocular infection, chiefly blepharitis and catarrhal conjunctivitis acute and chronic, were treated by the local application of two types of ointment, one containing carbomycin hydrochloride, and the other carbomycin as the base. *Staphylococcus aureus* was the microorganism isolated most frequently in these cases; *Staphylococcus viridans* and *D. pneumoniae* were also isolated in some of the cases. These were all gram-positive coccal infections; no cases of gram-negative coccal infection were available at the time. Of the 32 cases treated with the carbomycin hydrochloride ointment all showed improvement within two weeks, usually in seven to ten days. Nearly all the patients in this group showed a mild reaction in skin and conjunctiva, but repeated cultures showed that the pathogenic organisms disappeared in all cases; and the local irritation subsided when the antibiotic was discontinued. In the 18 cases treated with the ointment with carbomycin as the base, all were improved, and the ointment did not cause the local irritation observed with the carbomycin hydrochloride ointment. There were only 3 cases in which local sensitivity reaction occurred in the entire series, and only one was severe; all subsided within a week after the antibiotic was discontinued. In experiments on rabbits' eyes, it was found that after the application of the carbomycin hydrochloride, carbomycin was found in the aqueous in concentrations at a therapeutic level. With the ointment containing carbomycin as a base, no carbomycin was found in the aqueous. This finding, the authors state, "should be kept in mind when treating intra-ocular infections."

COMMENT

The number of mycetin preparations now available is very great and from the various well planned reports of the results obtained, finally will come a definite conclusion as to the value and limitation of each.

R. I. L.

Frequency of Retinoblastoma in the Progeny of Parents Who Have Survived the Disease

A. B. Reese (*A.M.A. Archives of Ophthalmology*, 52:815, Dec. 1954) in a study previously reported, of the occurrence of retinoblastoma in the siblings of children who had the disease, but whose parents had normal eyes, found that there were 103 siblings in 60 families, and only one of these had retinoblastoma. Two later reports found in the literature bring the total number of such children to 150 with 378 siblings, and only one case of retinoblastoma among these siblings. This analysis indicates that in cases of sporadic retinoblastoma in which both parents have normal eyes, the likelihood that a second sibling will show

retinoblastoma is less than 4 per cent, and probably about 1 per cent. In the previous report, in 5 of the cases analyzed, one of the parents had a retinoblastoma; there was a total of 9 children in these 5 families, and 8 of these children had retinoblastoma. Since that time 10 other families have been observed in which one parent had retinoblastoma; there were 21 children in these 10 families, 15 of whom had retinoblastoma. Thus combining the two series, there were 30 children whose mother or father had retinoblastoma, and of these 23, or 77 per cent, had the tumor. In these 15 families, there was only one in which all the 3 children showed no retinoblastoma; this family was not found in a routine investigation of the children of parents who had survived a retinoblastoma. From these findings the author concludes that if healthy parents have had one child with retinoblastoma, this is not a "contraindication" to their having more children, "but there is a very strong contraindication to any retinoblastoma survivor having children."

COMMENT

This is a most valuable clearing of a difficult question which arises whenever an affected child comes for treatment. Heretofore the grief occasioned by the picture of a small child with this awful disease has warped the thinking of all concerned in the care of the case, but now we have something reliable to guide our conclusions.

R. L. L.

Dark Adaptation in Disorders of the Genital Function in Women

I. Landau and Y. M. Bromberg (*American Journal of Ophthalmology*, 38:839, Dec. 1954) report a study of dark adaptation in 125 women with various menstrual disorders, of endocrine origin, from fifteen to forty-eight years of age," as compared with 30 women with normal menstruation, twenty to forty-five years of age. Impairment of dark adaptation was found in 27 of 34 women with pituitary amenorrhea, and in 5 of 7 women with ovarian amenorrhea. There was slight impairment of dark adaptation in 5 to 12 adolescents with functional uterine bleeding, but dark adaptation was more definitely impaired in 42 to 45 women with uterine bleeding "due to an increased estrogen activity preceding the menopause." The most marked impairment of dark adaptation was found in 9 patients with adiposogenital dystrophy and in patients with tumors in the pituitary hypothalamic region. None of these patients with impaired dark adaptation showed any nutritional deficiencies or pathologic conditions that could be considered as a cause except their endocrine abnormalities; vitamin A blood levels were normal; and large doses of vitamin A had no effect on the dark adaptation. This study appears to support the theory that the hypothalamus, which contains centers that regulate both metabolic and gonadotropic functions, also "plays a role in the mechanism of scotopic vision."

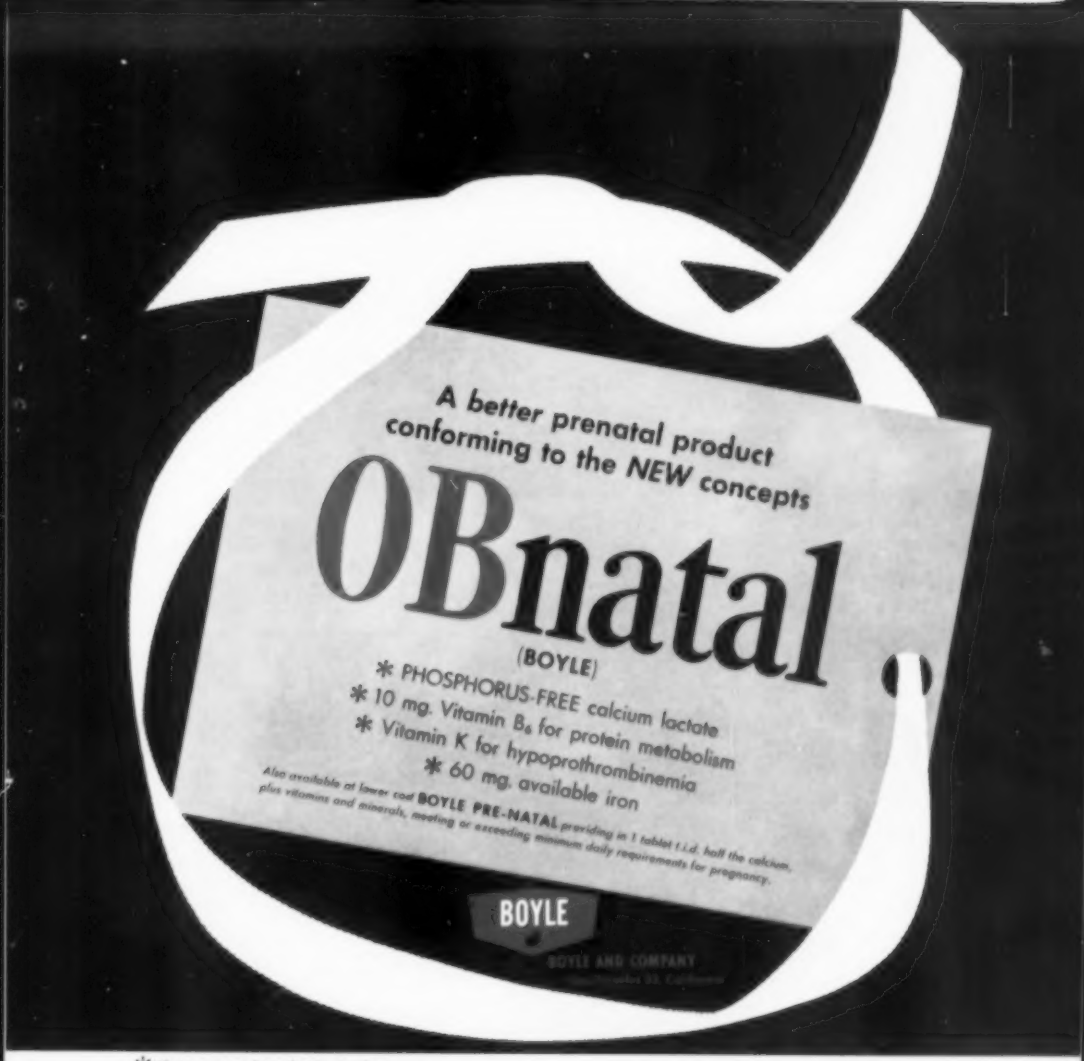
Treatment of Herpes Zoster Ophthalmicus with Cortisone or Corticotropin

H. G. Scheie and M. C. Alper (*A.M.A. Archives of Opthalmology*, 53:38, Jan. 1955) report 11 cases of herpes zoster with ocular involvement treated with cortisone or corticotropin. In all cases there was severe pain in the eye, and all showed iridocylitis; in some cases keratitis was also present; and in some cases, secondary glaucoma. The cortisone or corticotropin was given paren-

terally or by mouth on beginning treatment, and was also used locally when the eye lesions persisted or recurred. In all but one case, the pain was promptly relieved, usually in two to three days. The inflammatory ocular lesions showed fairly rapid marked improvement in most cases, but in several instances a mild iritis or kerato-iritis persisted or recurred, but could be well controlled by the local application of atropine and cortisone. In all but one case in which the ocular tension was elevated, it rapidly became normal under cortisone treatment; in one case surgery was necessary. There was no permanent visual loss in any of these cases. In a review of the literature, reports of 24 cases of herpes zoster treated with "systemic" cortisone or corticotropin were found; of these 15 had ocular involvement. In 13 of these 15 patients, the ocular lesions were completely healed within a brief period; in one improvement occurred in three months, and in one relapse occurred. These results, reported by the authors and by others, indicate that cortisone or corticotropin is "of great value" in the treatment of herpes zoster ophthalmicus. Antibiotics may also be given to prevent or diminish secondary infection. It is "very unlikely" that cortisone or corticotropin has any specific effect on the virus of herpes zoster, but in some way, these hormones probably "block the response of the tissues to the viral agent," and thus, if their use does not result in complete cure of the ocular lesions, the ocular reaction is suppressed and the serious complications of herpes zoster ophthalmicus do not develop.

COMMENT

Local antibiotics with cortisone are most effective in herpes zoster ophthalmicus. The cornea must not be exposed until sensation is somewhere near normal. The severe pain is usually due to damage to the ganglion of the fifth nerve for which x-ray therapy is effective.
R. I. L.



*What pregnancy diet authorities say about

LEG CRAMPS Page, E.W., and Page, E.F.: Obst. & Gyn., 1:94:100 (1953):

"Leg Cramps may be either prevented or relieved to a significant degree by the use of calcium salts free of phosphorus."

OBNATAL contains a "calcium salt free of phosphorus" . . . Calcium Lactate USP.

VITAMIN B_6 Wachstein, M., and Gutstein, A.: J. of Lab. & Clin. Med. 42:1, 98-107 (1953):

"It seems the growing fetus drains the maternal source of Vitamin B_6, resulting in a disturbance of normal protein metabolism. It is suggested that pregnant women be given 10 mg. of pyridoxine hydrochloride daily."

OBNATAL contains 10 mg. of B_6 in 1 tablet t.i.d.

VITAMIN K National Academy of Sciences, National Research Council, Pub. 302, pg. 27:

"It is suggested that a daily oral dose of 1 mg. of Vitamin K be given to pregnant women during the last month of pregnancy."

OBNATAL contains 1.5 mg. Vitamin K in 1 tablet t.i.d.

IRON Hamilton, H.G., Higgins, R.S., Alsup, W.S.: Western J. of Surg. Obst. and Gyn. 62:4, 2:5:215 (1954):

"Any pregnancy is going to produce an iron deficit . . . unless energetic therapeutic steps are taken . . . unless she has abnormally high iron storage at the time of conception."

OBNATAL contains 60 mg. available iron (from 300 mg. Ferrous Sulfate, U.S.P.) in 1 tablet t.i.d.

Suggested daily dose of
1 capsule-shaped tablet t.i.d. supplies

Calcium Lactate USP	2.25 Gm.	Calcium Pantothenate	3.5 mg.
Vitamin B_6	10.0 mg.	Vitamin A	3,000 USP units
Vitamin K	1.5 mg.	(acetate)	
Ferrous Sulfate USP (iron content 60 mg.)	300.0 mg.	Vitamin D	300 USP units
Vitamin B_{12}	10.0 mg.	Iodine	0.15 mg.
Vitamin C	100.0 mg.	Copper	1.0 mg.
Vitamin B_1	4.0 mg.	Magnesium	15.0 mg.
Vitamin B_2	2.5 mg.	Manganese	4.5 mg.
Niacinamide	30.0 mg.	Molybdenum	0.25 mg.
Folic Acid	0.3 mg.	Zinc	2.25 mg.

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4. Niacinamide
5. Bile acid and digestive aids
6. Vitamins and Minerals

At all pharmacies in bottles of 100

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for maintenance

Each DEIMAL tablet contains:

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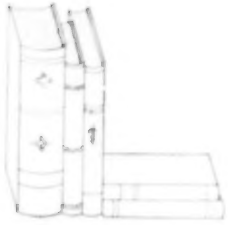


Medical Book News

Edited by Robert W. Hillman, M.D.

Drug Addiction

The Bane of Drug Addiction. By Orin Ross Yost, M.D. New York, Macmillan Company, [c. 1954]. 8vo. 155 pages. Cloth, $4.00.

This timely volume is rooted in a quarter century of psychiatric practice, many years of which were primarily focused upon problems of drug addictions. The author writes in a very readable straightforward manner sustaining interest in this serious problem which challenges the professions of medicine, nursing, law, social and welfare workers, law enforcement officers, and the general public.

Case histories of the author's former patients are selected to give understanding and insight into the multiplicity of motivating and causal factors, symptoms, course, and how present-day treatment methods, including rather long hospitalization with concurrent tailor-cut psychotherapy, are effectively utilized. The juvenile addict and his problems are given rightful prominence. Comprehensive answers are found to questions such as, How and why addiction? What makes for continuance? Why can't he stop?

Drug addiction is not only personal but a social problem menacing civilization, and, therefore should become the concern of every responsible citizen of this and other nations. Toward this end, the World Health Organization is bending its efforts. The physician occupies a strategic role working with individual patients, assisting in bringing to recognition the real causes, often deep-seated and unconscious, uprooting and constructively modifying them. Addiction is both a symptom and a disease signaling dissatisfaction with pain, illness, deprivation, discrimination, frustration, guilt and other factors. Its spreading tendency with demoralizing effects, ofttimes linked to criminal activities, significantly adds to its seriousness. This admirably written account should heighten interest, further a working knowledge of the facts, and alert society to better preventive, as well as treatment measures, in the relentless battle against this pyramiding, heinous problem.

FREDERICK L. PATRY

Therapeutics

The Pharmacologic Principles of Medical Practice. A Textbook on Pharmacology and Therapeutics for Medical Students, Physicians, and the Mem-

—Concluded from preceding page

bers of the Professions Allied to Medicine. By John C. Krantz, Jr., Sc.D. & C. Jelleff Carr, Ph.D. 3rd Edition. Baltimore, Williams & Wilkins Co., [c. 1954]. 8vo, 1,183 pages, illustrated. Cloth, $12.00.

Although this book is intended primarily for the student on his first acquaintance with pharmacology, it is probably of greater value to the practitioner of medicine, who has immediate use for the great amount of useful information contained therein. The chapters on morphine and epinephrin, for example, would not be particularly interesting to the practicing physician, but those on blood clotting, on the newer drugs used in the treatment of hypertension, digitalis preparations, and on the adrenal cortical hormones, are extremely interesting. This volume would be a useful addition to any library and can be recommended freely both to the student and the graduate.

PAUL I. KEARNEY

BOOKS RECEIVED FOR REVIEW

De L'Expérimentation Sur L'Homme. By Dr. J. de Larebeyrette. Sens (Yonne), The Author, [c. 1954, The Author]. 12mo, 102 pages.

Guide for Audiometric Technicians. Wausau, Wisconsin, Accident Prevention Department, Employers Mutual Liability Insurance Company of Wisconsin, Employers Mutual Fire Insurance Company, [c. 1954]. 4to, 36 pages, illustrated.

Investing for the Successful Physician

Prepared for Medical Times by Merrill Lynch, Pierce, Fenner & Beane, underwriters and distributors of investment securities, brokers in securities and commodities.

OFFICE EQUIPMENT INDUSTRY

The office equipment industry is small by comparison with industries like steel or autos. But without its products our leading and largest enterprises would not be able to operate efficiently and economically. The tools it provides affect the jobs of some 65,000,000 individuals in our labor force.

Life itself requires record keeping, whether by the simplest forms or the most complicated new type of electronic computers now finding broader employment in many fields. The office equipment industry volume of approximately $2 billion annually is only a small part of our gross national product yet its contribution to the efficient operation of the many fields of endeavor enables us to enjoy the highest living standard in the world.

Business machines are time and labor saving and they operate in an area where costs are of primary importance. Just as machines and new tools in the factories have reduced costs in manufacturing, so have new and better tools in the office served to reduce indirect labor costs in the face of unabated upward trend in white collar wages. Costs of keeping records represent overhead, a burden which cannot be contracted easily in periods of lessened business activity.

And records themselves are becoming a front window through which industry may be able to get a preview of its problems rather than an interpretation of the past.

By means of digital and analog computers, industry may now get a better understanding of many factors affecting successful operation: advance data on the impact of costs, selling expenses, advertising budgets, timeliness of introducing new products and a multitude of other factors to determine the policy in any avenue of endeavor. In fact, there is no facet in the field of business, ranging from production to

internal statistics, that is not capable of better interpretation by means of a computer.

Sales Growth Despite cyclical characteristics, the office equipment industry has shown excellent growth in some segments. The records of 21 leading makers of various types of equipment show sales increased 50% between 1949 and 1953 and almost six times the 1939 total. This gain has not been evenly distributed and the most important growth has been in the field of accounting and bookkeeping machines including all types of punched card equipment. Older lines have prospered to a lesser degree with some of the dollar sales gains attributable to higher prices rather than larger unit sales.

Electronics The office equipment industry apparently has now entered a period of transition. One member of the industry has already compared its possibilities to the industrial revolution. Faster, more economical methods of record keeping promise to help industry solve one of its most pressing and costly problems. Electronic computers hold much promise in this regard.

Anticipation is generally keener than realization, and at this still early stage of commercial development of electronic computers, investors have already placed optimistic values on profits yet to be earned. However, a possible addition of perhaps $500,000,000 in revenues could bring inestimable benefits to the relatively few participants in the field. Relative positions are changing and already new names are challenging the old-timers who have thus far dominated the industry.

In 1953, some ten companies contributed about half of the industry's gross volume and one, International

Business Machines, represented almost 20% of the total. While there is room for new leaders, the cost of building up distribution—even for a product of unusual merit—presents a most difficult obstacle especially for competitors with fewer dollars to spend. Nevertheless, all the possibilities for accomplishment are not restricted to the leading companies and there have been some notable contributions by smaller members of the field. In certain types of computers, out-and-out newcomers in the field have made outstanding development progress.

Foreign Markets The domestic market alone provides only part of the opportunity for sales growth by the office equipment companies. Under average circumstances, the export market will absorb somewhere between 20% and 25% of products of the domestic industry. Unfortunately, the unavailability of funds and other currency or tariff restrictions have not made it easy for US companies to export into foreign areas.

This problem has been solved partially by manufacture in other areas where the acceptance of so-called "soft currency" poses no problem. Foreign profits of the US manufacturers have often been a very important contributor to total profits. The growth of business in underdeveloped areas promises to make them a fruitful source for sales of all types of equipment.

To be sure the field involves considerable competition from foreign manufacturers. That problem is often met by supplying these areas through foreign subsidiaries.

Prices and Demand Prices of office equipment have been increased since ceiling restrictions were lifted

Some Pertinent Figures . . . . . Office Equipment Companies

	Fiscal Year Ends	Earnings—$ Per Share 1954	1953	Interim Period	1955	Convec. Year 1954 Divs. Paid	Divs.—$ Per Share Paid or Decl. 1954	Last 12 Mo.	1954-55 High	Low	1955 High	Low	Recent Price	Yield %
Addressograph-Mult.														
Burroughs Corp.														
Dictaphone Corp.														
Gray Mfg.														
Haloid Company														
IBM														
Marchant Calculators														
Nat'l. Cash Register														
Pitney Bowes														
Royal-McBee														
Sperry Rand														
Underwood Corp.														

and further increases are indicated to take care of the rise in costs which in many instances, has outrun price mark-ups. Actually, prices of office equipment are only about 50% above the pre-war levels whereas all manufactured goods have gone up almost 100% in the same period of time. An important ingredient in the manufacture of office equipment is the high cost of labor since most devices require relatively little material. As a result, several companies have installed labor-saving machinery and a better relationship between prices and costs should ultimately be obtained. In turn, this should improve profit margins which in many instances have fallen to relatively low levels.

In recent years, one of the most important influences on office equipment sales and profits has been defense spending. Contraction of Government purchases, particularly in 1953, came at a most inopportune time. That was especially true in the case of companies endeavoring to introduce new products which involve a considerable amount of expense in the early stages.

In the last quarter of 1954 and early in 1955 there were distinct evidences of improvement in demand for office equipment. Since the industry is essentially a service one in character, even though its products are capital assets, betterment in the business outlook should be accompanied by still further improvement. While the new types of machines get the spotlight, old standard lines such as typewriters and office desks and filing equipment could experience a resurgence in demand as general business improves. The pressure of large amounts of paper work is a problem for every industry.

The investor is afforded a fairly wide range in the selection of office equipment equities for various purposes. Some of the securities available, like International Business Machines, invariably appear to be high in relation to earnings and dividend payments. However, this issue has represented one of the most profitable growth vehicles in the entire industry and while competition in the field has been intensified, the company's position remains pre-eminent.

An earnest challenger which has made considerable progress during the last three years is Remington Rand (about to be renamed Sperry-Rand Corp. as the result of merger). While its electronic computer division is not yet believed to be on a profitable basis, progress in that direction should be obtained. Others in the electronic computer field are National Cash Register, Burroughs Underwood, Marchant, Electrodata and Telecomputing.

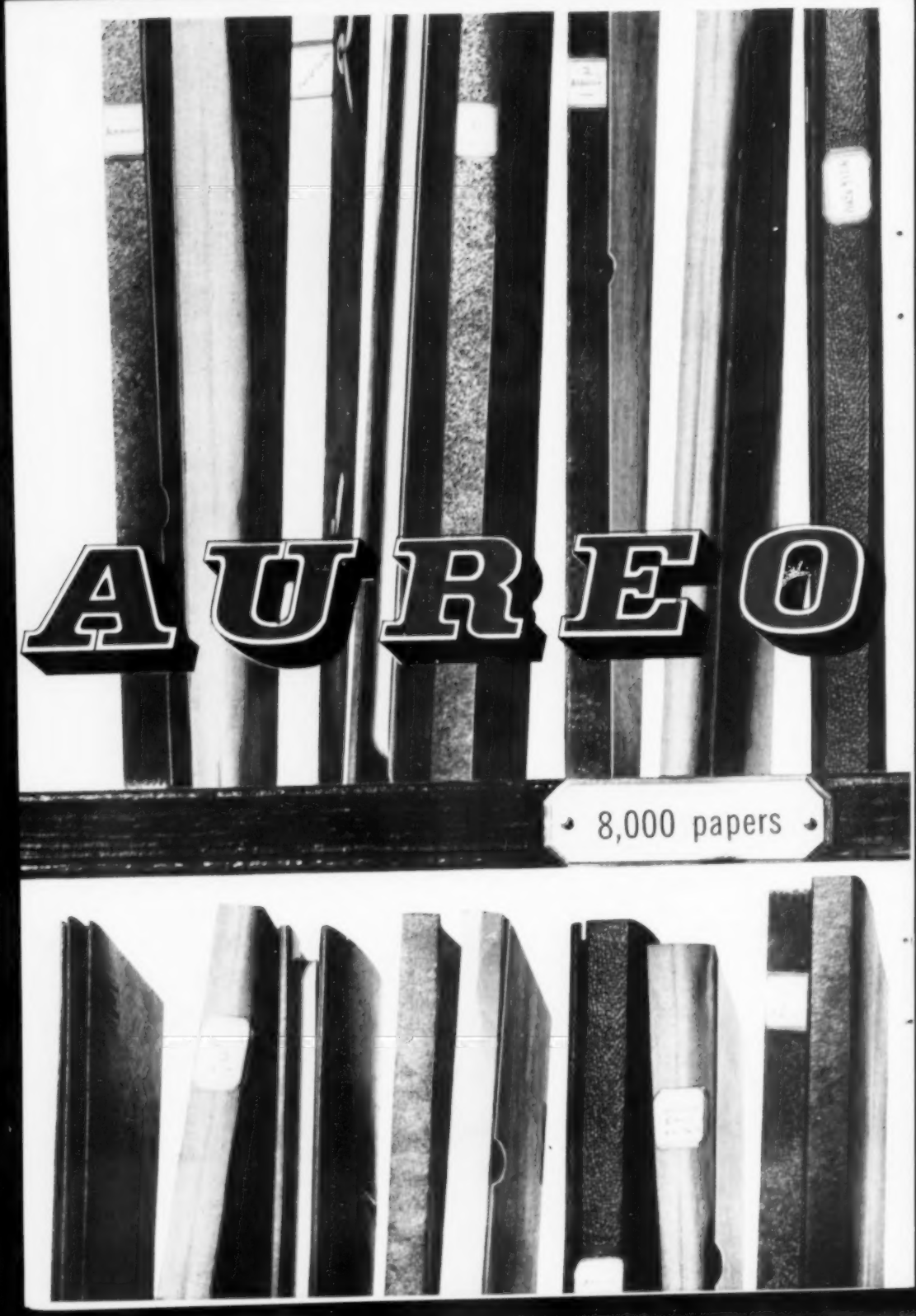
The investor's choice can range from good quality stocks to issues more speculative in character. He can expect less liberal dividend policies in the companies with extreme growth possibilities particularly in the calculating, tabulating and electronic fields. Many of these companies have growing need for capital to finance production of costly machines, some of which are rented and therefore represent capital assets. In the more mature divisions of the industry, dividend policies have been more liberal over a period of years. Yet, these companies are confronted with the need of financing improved models and must do part of it through retained earnings. It costs more to make the same things as were produced in yesteryear and because of high taxes and the absence of price increases, companies may have to resort to somewhat less liberal dividend policies.

By and large, the price swings in the industry have been substantial and cyclical. With the possible exception of companies whose income is predominantly from rentals, the industry will continue to follow the various fortunes of the business economy as a whole. Meantime, price performance will be over a wider range than in the case of more stable companies who are les affected by the vagaries of the business cycle.

SALES OF OFFICE MACHINES, SUPPLIES AND SERVICE BY LEADING U. S. MANUFACTURERS (MILLIONS OF DOLLARS)

	1949	1950	1951	1952	1953
Accounting and Bookkeeping (Including Punched Card Equipment)	$160.5	$218.8	$231.7	$276.7	$271.3
Adding	55.4	73.6	74.3	80.7	79.5
Calculating	44.0	62.1	65.4	63.5	61.5
Addressing, Mailing and Dictating	30.8	39.9	47.0	43.4	46.4
Duplicating	20.5	26.4	30.2	24.1	26.4
All Other (Except Typewriters)	89.4	112.3	120.6	99.2	109.4
Total Machine Sales	400.5	554.1	606.4	590.7	594.2
Supplies	116.7	150.9	168.4	169.4	210.8
Parts and Service	104.9	125.0	139.7	168.3	193.6
Total Office Machines, Supplies and Service	$621.5	$830.2	$914.5	$928.4	$998.6

Note: Above data include exports, as well as domestic sales. Sales of typewriters and office furniture are not included but typewriter income for 1953 was about $140,000,000.


AUREO
8,000 papers

During its seven years of use, AUREOMYCIN has been the subject of more than 8,000 medical papers published in various journals. Reports have been written concerning its value in every field of medicine. Few therapeutic agents have been so well documented.

When a drug has demonstrated its worth, it is usually said to be "established," "accepted," or "proved." If any antibiotic is any of these, AUREOMYCIN is it.

AUREOMYCIN stands on its record!

MYCIN

Chlortetracycline *Lederle*

Now Available:

AUREOMYCIN SF Capsules, 250 mg.

For Patients with Prolonged Illness AUREOMYCIN SF combines effective antibiotic action with Stress Formula vitamin supplementation to shorten convalescence and hasten recovery. One capsule, q.i.d., supplies one gram of AUREOMYCIN and B complex, C and K vitamins in the Stress Formula suggested by the National Research Council. AUREOMYCIN SF Capsules are dry-filled and sealed, contain no oils or paste.

Lederle LEDERLE LABORATORIES DIVISION *AMERICAN CYANAMID COMPANY* PEARL RIVER, NEW YORK

MODERN THERAPEUTICS

Achromycin Helpful For Skin Disorders

Achromycin tetracycline is a powerful agent which may be safely used in the treatment of pyogenic skin diseases, Dr. Bethel Solomons, Jr., reports in the *Journal of the Irish Medical Association* [37:342 (1954)] on the basis of 110 cases successfully treated with the new antibiotic.

Dr. Solomons applied Achromycin topically in three different bases—an emulsifying base, a yellow paraffin base, and an alcohol base depending on the condition treated. The group included feverish rashes of the outer ear, under the nail fold, the scalp, bearded areas of the face, infections of hair follicles, acne, impetigo, and gravitational ulcer among others.

"The rapidity with which infection was eradicated in all cases was as striking as I had found with Aureomycin chlortetracycline," Dr. Solomons writes. "Impetigo was cleared up in three or four days, and, although follow-up periods on cases of sycosis barbae have not been prolonged, the immediate results were excellent." No sensitization to Achromycin occurred in the 110 cases.

Dr. Solomons concludes that Achromycin is a "valuable addition to therapy" for pyogenic skin affections in general and for patients who have become sensitized to other chemotherapeutic treatment. He finds it "pleasant to use" and "stable for reasonable periods without refrigeration, both in ointment and alcohol form."

Vitamin D_2 Provides Favorable Response in Some Dermatoses

Very encouraging results were obtained from the use of vitamin D_2 in the treatment of a variety of dermatoses, according to Grandbois in *Canad. Med Assoc. J.* [72:202 (1955)]. A total of 120 patients were treated. Good to excellent results were obtained in 38 to 44 cases of long-standing atopic dermatitis and in 11 or 13 with acne pustulosa. Favorable results were also obtained in 7 of 9 patients with lichen planus. No value was demonstrated, however, in the cases of sarcoidosis, chronic lupus erythematosus, deep mycosis, pustular psoriasis, parapsoriasis, and bacterids.

—Continued on page 96a

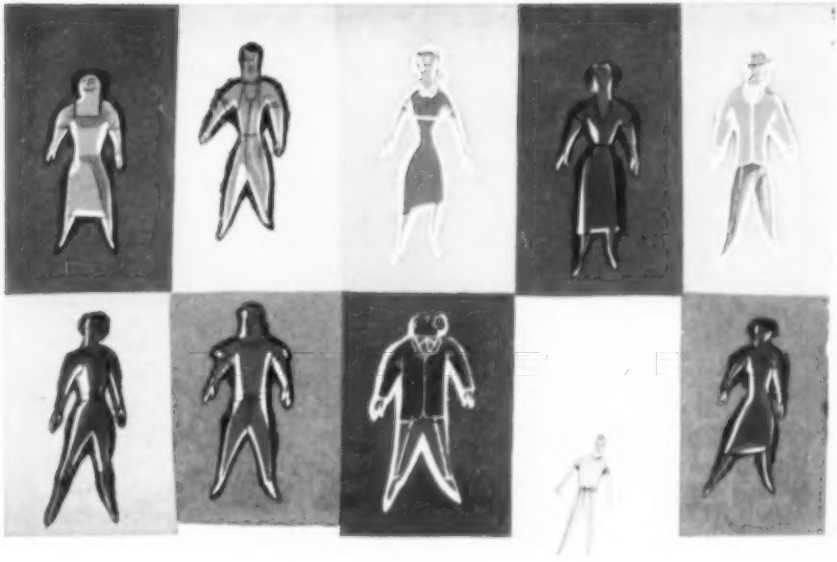
Diagnosis, Please!

ANSWER

(from page 25a)

ULCERATIVE COLITIS

Rigid colon with multiple ulcerations and pseudopolyposis.



9 OUT OF 10 ANEMIC PATIENTS CAN BE TREATED WITH

PERIHEMIN*

Hematinic

Each PERIHEMIN Capsule contains every known hemopoietic factor:
Vitamin B_{12} with Intrinsic Factor Concentrate . . . ½ U.S.P. Oral Unit;
Vitamin B_{12} (additional) . . . 5 mcgm.; Ferrous Sulfate (Exsiccated) . . . 192 mg.;
Folic Acid . . . .0.85 mg.; Ascorbic Acid (C) . . . 50 mg.;
Insoluble Liver Fraction . . . 50 mg.

Two forms: Capsules and JR Capsules for children. JR Capsules are approximately one-quarter the potency of this formula.
Either form in bottles of 100 and 1,000.

Lederle LEDERLE LABORATORIES DIVISION *AMERICAN Cyanamid COMPANY* PEARL RIVER, NEW YORK

—Continued from page 964

Antibiotics in the Prevention of Rheumatic Fever

Evidence is becoming increasingly abundant that the group A streptococcus is the inciting agent of first attacks and of recurrences of rheumatic fever. The proper control of group A infections, particularly of the upper respiratory tract, will markedly reduce the incidence and morbidity of rheumatic fever.

In the *Bull. N.Y. Acad. Med.* [31:165 (1955)], Stollerman suggested that one of the following schedules of treatment be given for the treatment of streptococcal pharyngitis: (1) one injection of 600,000 to 1.2 million units of benzathine penicillin, (2) 600,000 units of procaine penicillin in oil with 2 per cent aluminum monostearate every other day for 3 or 4 doses, (3) 300,000 units of aqueous procaine penicillin daily for 10 days, or (4) at least 500,000 units of oral penicillin daily for 10 days. Aureomycin is effective in a dosage of 2 Gms. for 7 days, but penicillin is preferred unless patient is sensitive to penicillin.

If the organisms are completely eliminated with adequate therapy, the incidence and morbidity from rheumatic fever can be markedly reduced subsequent to streptococcal infections. Early diagnosis provides greater effective propylaxis. Herein, lies a significant part of the problem for, early differentiation of streptococcal respiratory infections from ordinary coryza and tracheitis is rather difficult.

—Continued on page 966

Pyridium®

(PHENYLAZO-DIAMINO-PYRIDINE HCl)

Gratifying relief from urogenital symptoms *in a matter of minutes*

MAJOR ADVANTAGES: Swift-acting, soothing urinary analgesic. Nontoxic local action restricted to urogenital mucosa. Compatible with sulfas and antibiotics.

FOR COMFORT
ON THE JOB . . . AND AT PLAY

EFFECTIVE—An extensive evaluation[1] of the effects of PYRIDIUM in 118 cases of pyelonephritis, cystitis, prostatitis and urethritis showed the drug relieved or abolished dysuria in 95% of the patients and reduced or eliminated nocturia in 83.7% of the cases.

WELL-TOLERATED—Specific analgesic action is confined entirely to the urogenital mucosa. PYRIDIUM may be administered concomitantly with sulfonamides or antibiotics. When so used, it provides welcome relief from painful symptoms in the interval before the antibacterials can act.

PHYSIOLOGICAL—The soothing analgesic action of PYRIDIUM helps relax irritated, tense sphincter muscles of the bladder. This relaxation minimizes the amount of residual urine.

PSYCHOLOGICAL—Prompt appearance of the characteristic orange-red color in the urine is positive assurance to the patient of PYRIDIUM's rapid access to affected areas.

SUPPLIED—in 0.1 Gm. (1½ gr.) tablets, vials of 12 and bottles of 50, 500 and 1,000.

PYRIDIUM is the registered trade mark of Nepera Chemical Co., Inc., for its brand of phenylazo-diamino-pyridine HCl. Sharp & Dohme, Division of Merck & Co., Inc., sole distributor in the United States.

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REFERENCE: 1. Kirwin, T. J., Lowsley, O. S., and Menning, J., *Am. J. Surg.* **62**:330-335, December 1943.

Allergies are always "in season"...

...in food allergies...

...contact dermatitis

drug allergies...

...allergic coughs

insect bites...

CLINICAL SAMPLES OF THIS OUTSTANDING NEW ANTIHISTAMINIC SENT ON REQUEST

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LABORATORIES, INC., PHILA. 32, PA.

..so Clistin is always of value...

dust and smoke allergies..

..rhinitis...

heat or cold allergies..

and for an antihistaminic with maximum potency and minimal side effects, switch to

CLISTIN® MALEATE

(Carbinoxamine Maleate, McNeil)

—an entirely new antihistaminic compound which is impressing the medical profession with the relief it provides. Clinical trial has confirmed the predicted low incidence of side effects. Drowsiness is the exception rather than the rule. Try Clistin on your next allergy case.

Tablets Clistin Maleate, 4 mg.
Tablets Clistin R-A (repeat action), 8 mg.
Elixir Clistin Maleate, 4 mg. per 5 cc.
Clistin Expectorant
Tablets Clistanal (Clistin Maleate, 2 mg. plus APC)

—Continued from page 98a

Use of Cobalt and Iron in the Treatment and Prevention of Anemia of Prematurity

The pathogenesis of the anemia of prematurity is still somewhat obscure, but the blood picture closely resembles that of anemia associated with infection. In each case the anemia is normocytic and normochromic with a low reticulocyte count, and this similarity between the anemia of prematurity and that of sepsis prompted an investigation by Coles and James, *Journal Lancet* [75:79 (1955)] of the effect of cobalt in premature infants.

The study included 126 infants who were divided into 4 groups. Of these 83 were followed for six months or longer. Group 1 acted as controls. Group 2 received 10 mg. of cobalt sulfate daily from one to twelve days. Group 3 received 20 mg. of cobalt sulfate daily from four to eight weeks. Group 4 received 20 mg. of cobalt sulfate and 4.5 gr. of ferrous sulfate daily from four to eight weeks.

Infants in Groups 3 and 4 combined had a significantly higher average hemoglobin content and red cell count at each examination from two months onward than Groups 1 and 2 combined. Infants in Group 4 had significantly higher hemoglobin contents from four to six months than Group 3, also receiving cobalt but no iron. At this stage iron deficiency becomes important in the development of anemia in premature

—Continued on page 102a

—Continued from page 1063

infants, and these results were to be expected. No case receiving iron and cobalt from four to eight weeks required any additional therapy, but all cases that did were from the control group.

Cobalt appears to be of value in the prevention of early anemia in premature infants, and if iron is administered simultaneously, the risk of an iron deficiency anemia developing after the fourth month is considerably reduced. Cobalt has no toxic effects and no unfavorable influence on the weight gain in the dosage employed.

The mode of action is uncertain, but two possibilities seem likely:

(1) a direct action on the erythropoietic tissue in the marrow;

(2) a possible catalytic action enabling available iron to be more readily utilized for hemoglobin synthesis.

Pitressin as a Test of Renal Function

With general agreement that the specific gravity of urine is a satisfactory test of renal function, there remains the question of an acceptable testing method. In order to obtain bases of comparison, it was believed advisable to make observations on a number of normal persons. Clifton Lowther surveyed pertinent literature and reported the results of his investigations in the *Glasgow Medical Journal* [36:35 (1955)]. A group of 83 medical students of both sexes was used for the tests.

—Continued on page 1065

NEW

specifically designed for infants and children

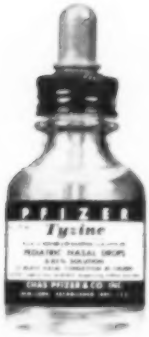
KNOWN

the new standard for nasal decongestion providing nasal patency in minutes for hours

Tyzine®

brand of tetrahydrozoline hydrochloride

PEDIATRIC *Nasal Drops*



Pfizer

almost immediate relief lasting 4 to 6 hours after a single dose

odorless and tasteless

no sting, burn, irritation, or other local reactions

no rebound congestion

especially useful during the allergy season

systemic effects rare in recommended dosage

calibrated dropper for precise dosage

DOSAGE: 1-2 drops in infants under two years, and 2-3 drops in children two to six years.

SUPPLIED: in 1/2 oz. bottles containing Tyzine, 0.05%. Also available as Nasal Spray in plastic bottles containing 15 cc., 0.1%, and Nasal Solution in 1-oz. dropper bottles, 0.1%.

PFIZER LABORATORIES Division, Chas. Pfizer & Co., Inc. Brooklyn 6, New York

To counteract extremes of emotion...

Desbutal®

DESOXYN® *to brighten the mood*

NEMBUTAL® *to relax inner tensions*

One capsule represents 5 mg. DESOXYN Hydrochloride (Methamphetamine Hydrochloride, Abbott) plus 30 mg. NEMBUTAL Sodium (Pentobarbital Sodium, Abbott). Bottles of 100 and 1,000 capsules. Abbott

—Continued from page 102a

Urine specimens were evaluated following the 12-hour fasting test, and after the subcutaneous injection of ten units of pitressin (posterior pituitary extract). A specific gravity of 1.020 or higher was regarded as normal. Advantages claimed for the pitressin test are: (1) Its suitability for use in office practice, (2) The fact that the fasting is not left to the discretion of the ambulatory patient, and (3) The avoidance of a period of fasting which may be distressing to an ill patient. Side-effects were noted carefully. In more than 95 per cent of the students, extreme pallor appeared almost immediately and remained for nearly two hours, while vigorous hyperperistalsis, colic, torpor, faintness, headache and vomiting were noted by different members of the group, but at no time reached an alarming stage. It is concluded that the pitressin test is an efficient substitute for the Fishberg test.

Dermatologic Therapy

Many new drugs appear, frequently with extravagant claims which fail to be substantiated, but because the negative results are seldom published by investigators these drugs continue on the market at considerable expense but with very little value to the sufferer. Frank Melton, writing in the *Journal Lancet* [75:7 (1955)] takes up the matter from the dermatologist's view and points out that when considering a new drug for dermatologic use certain information should be sought, i.e., (1) Its advantages over accepted therapy and its com-

—Continued on page 108a

for the treatment of

- **AMENORRHEA**
- **FUNCTIONAL UTERINE BLEEDING**
- **HABITUAL ABORTION**

the most practical and generally satisfactory progesterone dosage form

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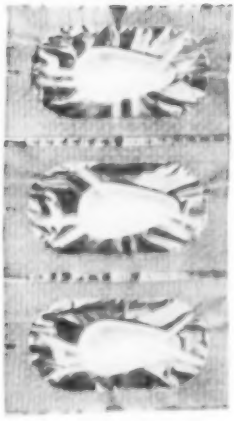

More acceptable
Avoids pain and inconvenience of injection . . . insures better patient cooperation than any other dosage form.

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Response is more predictable than with oral, or buccal and sublingual therapy.

More economical
Cost is low in terms of greater patient benefits.

"Colprosterone" Vaginal Tablets—Brand of progesterone U.S.P. presented in a specially formulated base to insure maximum absorption and utilization.

Complete dosage regimens for above indications as well as for premenstrual tension and lobular hyperplasia are outlined in descriptive literature. Write for your copy.

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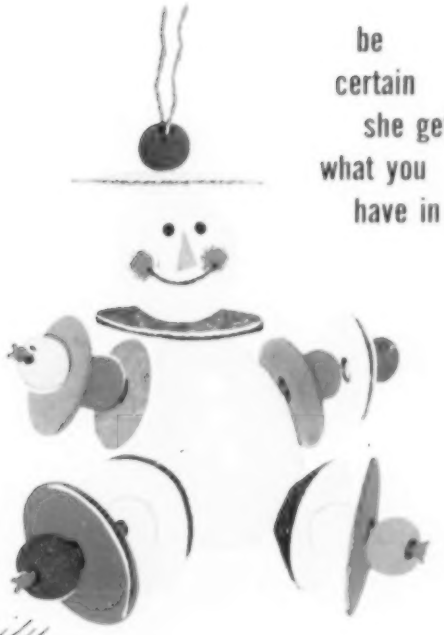
5618

—Continued from page 106

parative cost. (2) Its justification of higher cost in terms of reduction in time of disability and suffering. (3) Its bactericidal activity. (4) Its effect on the skin, and (5) Its tendency to cause a degree of sensitization when used for minor conditions that will preclude its use in more serious involvements.

The author mentions several illustrations, among them, the unsatisfactory results of treating psoriasis with undecylenic acid. The assets and liabilities of cortisone and ACTH in dermatology. These drugs do not cure; they depress activity of the condition and minimize symptoms, but recurrence may follow termination of the therapy. Hydrocortisone ointment has proved effective in certain conditions, but its cost is somewhat high. The question of sensitization is paramount in connection with penicillin ointment. To a lesser degree this factor influences the use of Aureomycin, Terramycin and erythromycin on the skin. Neomycin, bacitracin and polymyxin B, antibiotics which are rarely used internally, are preferable. Quinacrine hydrochloride (Atabrine) has been used successfully for chronic discoid (but not systemic) lupus erythematosus. However, reactions to the drug remain a problem. "New" treatments for herpes zoster have failed to prove efficacious. Opinions differ on the application of the so-called

—Continued on page 110



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Dosage: 1 to 3 capsules daily Package: bottles of 100 and 1,000

Each capsule contains

Vitamin A	[illegible] U.S.P. Units	Folic Acid	1 mg
Vitamin D	[illegible] U.S.P. Units	Calcium (as $CaHPO_4$)	250 mg
Thiamine Mononitrate (B_1)	2 mg	Phosphorus (as $CaHPO_4$)	190 mg
Riboflavin (B_2)	2 mg	Dicalcium Phosphate Anhydrous ($CaHPO_4$)	865 mg
Niacinamide	7 mg	Iron (as $FeSO_4$)	6 mg
Vitamin B_{12}	1 mcgm.	Ferrous Sulfate Exsiccated	20 mg
Vitamin K (Menadione)	0.5 mg	Manganese (as $MnSO_4$)	0.17 mg
Ascorbic Acid (C)	35 mg		

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Lederle

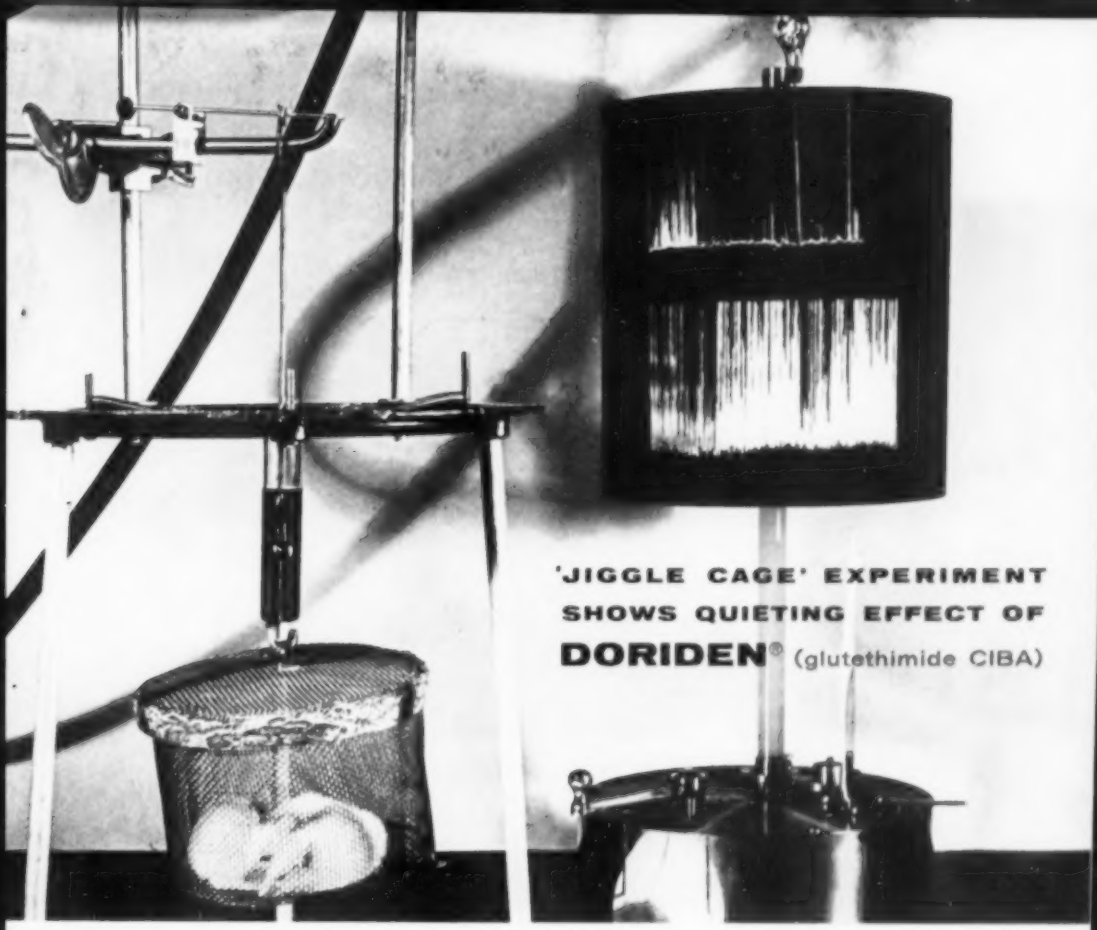
—Continued from page 109a

protective creams containing silicone, but their value in dermatologic therapy has yet to be established.

Gelatin in the Treatment Of Brittle Nails

S. Rosenberg and K. A. Oster *Connecticut State Medical Journal* [19:171 (1955)] report the treatment of 36 cases of brittle splitting nails treated by the administration of gelatin by mouth. In these cases the free end of the nail was fragile, peeled, chipped or split into lamina: this prevented manicuring of the nails to a rounded point. Most of the patients were given 7 Gm. of gelatin daily, which was taken in either water, fruit juice or milk. Eight older persons showing no pathological changes in the nails except the longitudinal ridging characteristic of old age were given the gelatin as controls: the nails showed no change in any of these cases at the end of three months. Of the 36 patients with brittle, splitting nails, treated, 26 showed definite improvement; the splitting of the nails stopped and they could be well manicured. One patient showed slight improvement; the splitting of the nails was stopped, but they continued to chip and break off at the corners. Of the 26 patients who showed definite improvement, the greatest degree of improvement was observed in 5 patients with psoriasis, although the treatment had no definite effect on any other lesions. Of the 9 patients in whom no improvement was observed, 3 took the gelatin for a month or less; one who

—Continued on page 114a

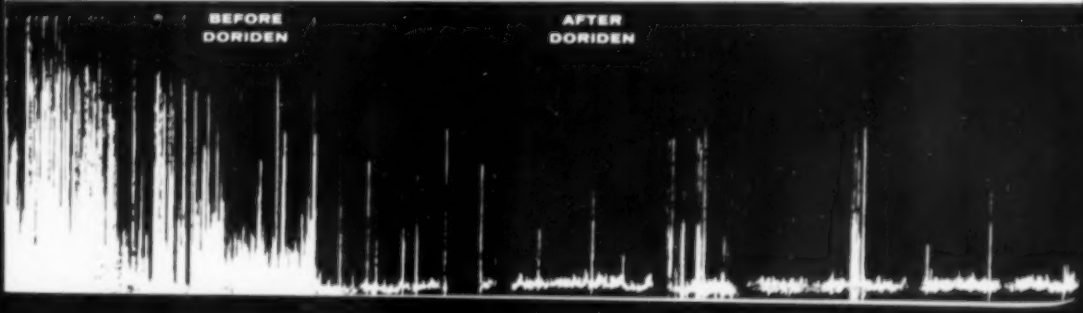


'JIGGLE CAGE' EXPERIMENT SHOWS QUIETING EFFECT OF DORIDEN® (glutethimide CIBA)

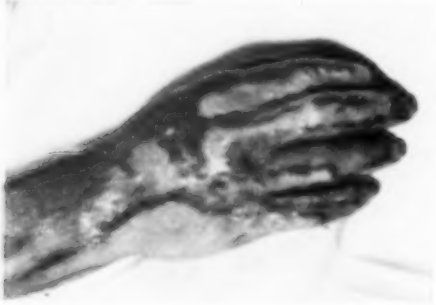
That **DORIDEN**—a totally new nonbarbiturate hypnotic and sedative—is effective as a quieting agent is demonstrated by this pneumatic movement recorder (jiggle cage), which measures the activity of laboratory animals. Note the marked change in the activity of mice after the administration of DORIDEN. Further evidence of the sedative and hypnotic effectiveness of DORIDEN is provided by numerous clinical studies. DORIDEN acts in 15 to 30 minutes and affords 4 to 8 hours of sound refreshing sleep. Present clinical evidence indicates it is not habit forming.

Tablets (white, scored), 0.25 and 0.5 Gm.

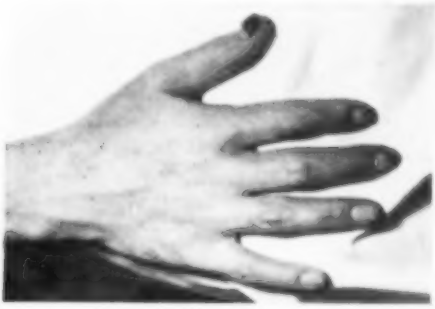
C I B A SUMMIT, N. J.



September 25. Second and third degree burns caused by flaming gasoline. Gauze pressure dressings of White's Vitamin A & D Ointment were changed at weekly intervals.



October 25. Healing is complete with minimal scar tissue and no contractures.



SEVERE BURN OR MINOR IRRITATIONS

WHITE'S VITAMIN A & D OINTMENT

IS EQUALLY EFFECTIVE—

Topical application of White's Vitamin A & D Ointment speeds restoration of epithelial and connective tissues. Even severe burns respond favorably to the healing action of Vitamin A & D Ointment.

Diaper rash, also chafing and abrasions, readily yield to its therapeutic and protective qualities. Prepared in suitable lanolin-petrolatum base, White's Vitamin A & D Ointment is pleasant to use, free from excessive oiliness, and will keep indefinitely. Does not stain the skin and is easily laundered from diapers or clothing.

You can prescribe it in 1½ oz. or 4 oz. tubes; 1 lb. or 5 lb. jars.

- diaper rash
- soft tissue injuries
- dry skin
- bedsores
- slow healing wounds
- varicose and diabetic ulcers
- fissured nipples

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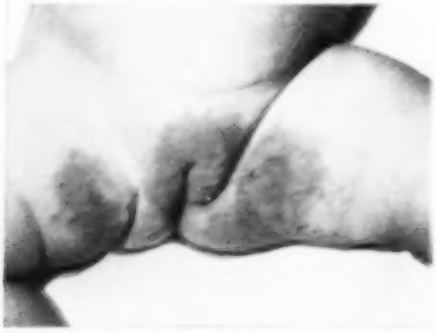
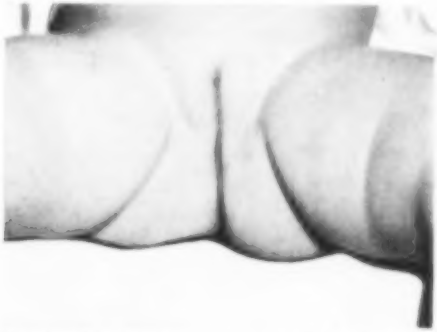


August 25. A typical case of diaper rash, characterized by excoriation and soreness.



September 1. After only one week of local applications with White's Vitamin A & D Ointment each time diaper was changed, the skin surface is normal.

—Continued from page 102a

showed no improvement at the end of three months, continued to take the gelatin, and showed definite improvement after five months. Three of the patients who failed to show improvement were diabetics, and two had congenital or familial disease of the nails. Eight illustrative cases are reported, all in women; and the authors state that "the vast majority" of brittle nails occur in women, and that this condition is an occupational disease of housewives, with some as yet unknown metabolic predisposition. Gelatin apparently acts on the "gel" or "cement substance" of the nails in keeping them normal.

Drug Therapy for Tuberculosis of the Genito-Urinary Organs

A study was conducted at the Veterans Administration Hospital, Bronx, New York and reported by Archie L. Dean [*Journal of Urology, 73: 599* (1955)], in which all types of tuberculosis of the genito-urinary organs in all stages of the disease were treated by certain therapeutic agents and the results carefully evaluated.

Streptomycin This drug was injected intramuscularly for 120 days in the daily amount of 1.3 gm. Benefits were striking, but toxic reactions were pronounced and the tubercle bacilli showed increasing resistance to the streptomycin. Smaller doses of the drug decreased tox-

—Continued on page 116a

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'Antepar' is well-tolerated and pleasant to take.

***SYRUP OF 'ANTEPAR'** Citrate brand Piperazine Citrate, containing the equivalent of 100 mg. piperazine hexahydrate per cc.

Bottles of 4 fluid ounces, 1 pint and 1 gallon.

***TABLETS OF 'ANTEPAR'** Citrate brand Piperazine Citrate, available in two strengths equivalent to either 250 mg. or 500 mg. piperazine hexahydrate, scored.

Bottles of 100

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—Continued from page 114a

ic manifestations but lowered the efficacy of the treatment.

Para-aminosalicylic acid (PAS) This agent showed effects on tubercle bacilli similar to those produced by sulfa drugs. When given in doses of 3 gm. four times daily, the dosage of streptomycin was reduced to 1 gm. twice weekly. This combined treatment was continued for one year and showed marked improvement without serious side-effects.

Iso-nicotinic acid hydrazid (Isoniazid) This agent is similar in its action to streptomycin and 600 times more powerful than PAS, but complications from its use are frequently of a serious nature, especially if impaired kidney function permits its accumulation in the blood. However, it has been added to the present plan of treatment of a one-year period of 1.0 gm. of streptomycin twice weekly, sodium PAS, 5 gm. three times daily and isoniazid, 100 mg. three times a day.

Treatment of Acute Diffuse External Otitis

An unusually large series of cases of acute diffuse external otitis at the USN Air Base, Jacksonville, Fla., provided B. H. Senturia, M.D., otolaryngologist of Washington University School of Medicine, St. Louis, Mo., and three associates, with a unique opportunity to evaluate treatments of the disease. They observed 336 ears in 364 patients using five different local antibacterials. Sixty-

—Continued on page 118a

—Continued from page 116a

five ears were treated with Furacin Ear Solution (Eaton), resulting in 54 clinically cured cases.

Reporting in *Laryngoscope* [*64*:1001 (1954)] the researchers note that Furacin therapy is "equal in effectiveness to the other preparations in the number of ears cured and in the number requiring a change in medication." They also observe that there was no case of sensitization to Furacin "necessitating a change of drug." Of the 65 cases treated with Furacin, 73 per cent had Pseudomonas aeruginosa infection of which 23 per cent were cured.

Working with Dr. Senturia were R. J. Cross, Baltimore, Md., J. E. Lett, USAF School of Aviation Medicine, Randolph Field, Texas, and A. V. Hardy, Florida State Board of Health, Jacksonville.

75 to 80 Per Cent of Patients Can Be Maintained on Oral Mercurials

That daily oral mercurial therapy can duplicate the effects of weekly injections "is not the whole story," according to Theodore F. Hubbard, M.D., assistant professor of medicine at the Creighton University School of Medicine, Omaha.

"The prime value of the oral mercurial is its capacity to sustain a continuous antagonism to most of the influences tending to cause salt and water retention in congestive heart failure," he states in a paper published in *The Journal of the Omaha Mid-West Clinical Society* [*16*:45 (1955)]. "Sound pharmacologic methods have shown Neohydrin by mouth to have about three fourths the diuretic potency

of the reference standard Mercuhydrin," it is also pointed out.

Single high peaks of diuresis, seen after parenteral therapy, are not produced. A less marked immediate effect but rather a gradual and sustained increase in sodium and water excretion has been observed. This sustained therapy with oral mercurials is distinguished in Dr. Hubbard's paper from the discontinuous therapy necessitated by other oral diuretics whose action is also reviewed.

"Once the patient has been brought to dry weight it appears that from 75 to 80 per cent of all patients who would ordinarily require parenteral mercurial injections may now be satisfactorily maintained by oral mercurials," Dr. Hubbard writes.

He reports that his group has maintained a "considerable" number of patients on oral therapy with Neohydrin for more than a year. No cumulative adverse effects have been observed. "Tolerance to the mercury *per se* does not develop," the author states, and the mercurial diuretic is rapidly eliminated in the urine.

Gastrointestinal Motor Activity Affected by Homatropine Methyl Bromide

Observations were made on the motor activity of the stomach, upper small intestine and sigmoid colon after the administration of homatropine methyl bromide. This drug is a synthetic member of the belladonna alkaloid group, and though differing clinically from atropine, its pharmacologic activity is similar. Amounts greater than those in ordinary clinical use were given orally or parenterally. The effects were studied by means of a balloon-kymograph technic, the position of the balloon being checked

fluoroscopically at the beginning and end of each observation. They were evaluated as "complete," and "incomplete." In a comparison of the effects with those of Banthine and atropine, it was found to be effective as Banthine and somewhat more so than atropine. The side-effects were chiefly dryness of the Mouth and blurring of the vision. Urinary retention occurred rarely. The author, William A. Hadfield, reporting in *Gastroenterology* [28: 642 (1955)], believes the most effective safe dosage for adults to be 30 mg. four times daily.

Bacterial Sensitivity to Erythromycin

The degree of bacterial resistance to many of the older antibiotics as well as the deleterious side-effects from their use is responsible for a definite trend toward an increasing administration of erythromycin. It, therefore, seemed of pertinent value to investigate changes in bacterial susceptibility to this drug over designated periods. A survey was conducted at The Mount Sinai Hospital, New York, and reported in their *Hospital Journal* [22:1 (1955)] by S. S. Schneierson. The findings were studied on a basis of four six-month periods. The microorganisms included Staphylococcus aureus, Staphylococcus albus, Streptococcus fecalis, Streptococcus viridans, Beta Hemolytic Streptococcus and Pneumococcus. All strains were found to be sensitive to erythromycin during the period of investigation. Some slight edivence of increase in resistance was shown by statistical analysis to be without clinical significance.

Cortisone Therapy of Early Epidemic Hemorrhagic Fever

Because the administration of cortisone had resulted beneficially in certain toxic-febrile disease states, it was given to a group of patients entering the Hemorrhagic Fever Center in Korea during the last three months of 1953. In all cases, therapy was begun in patients having been ill for less than 72 hours. Approximately half of the members of the group received cortisone while the other half acted as a control group and were given lactose. The cortisone was administered in a dosage of 300 mg. for two days, 200 mg. for two days and 100 mg. on the fifth day, in all, a total of 1,100 mg. Detailed records were examined after the patients had been discharged and their evaluation reported in the *Annals of Medicine* [*42*: 839 (1955)] by Major W. J. Sayer, MC, and his associates. While the disease pursued its characteristic phases in both groups, the course of the disease was milder in the patients who had received the cortisone. The need for administration of the cortisone early in the course of the disease is pointed out.

—Continued on page 122a

MEDICAL TEASERS

Solution to puzzle on page 41a

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Hexamethonium Chloride for Treating Rheumatoid Arthritis

A series of patients in active though not advanced stages of rheumatoid arthritis, rheumatoid spondylitis and osteoarthritis were given hexamethonium chloride for varying periods of less than one year. Laboratory findings as well as symptomatic changes were carefully noted. Patients were given a course of treatment with the drug, then the therapy was discontinued long enough to permit a recurrence of symptoms before a second course was started. The initial dose of hexamethonium chloride was 125 mg.: this was increased by 125 mg. daily until the patient was receiving 250 mg. four times daily. After reaching this dosage, the intake was increased by 125 mg. every two days until intolerance to the medication was demonstrated or until maximum benefit was obtained. A dose of 375 to 500 mg. four times daily was found to be optimal. All patients were followed closely for evidence of side-effects: those occurring most frequently were constipation, lightheadedness and nausea.

In summarizing the results of the study, the authors, Platt and Steinberg, in a report appearing in the *Annals of Internal Medicine* [42:816 (1955)], believe that the hexamethonium therapy brought about symptomatic improvement in rheumatoid arthritis without altering the course of the disease. Further study appears warranted.

Prothrombin Levels Elevated by Vitamin K_1

Eleven patients with thromboembolic

—Continued on page 124a

establishing

desired

eating patterns

Obedrin

and the 60-10-70 Basic Diet

Correct medication is important in initiating control that leads to development of good eating habits, essential in maintaining normal weight.[1,2,3]

Obedrin contains:

- Methamphetamine for its anorexigenic and mood-lifting effects.
- Pentobarbital as a corrective for any excitation that might occur.
- Vitamins B_1 and B_2 plus niacin for diet supplementation.
- Ascorbic acid to aid in the mobilization of tissue fluids.

Obedrin contains no artificial bulk, so the hazards of impaction are avoided. The 60-10-70 Basic Diet provides for a balanced food intake, with sufficient protein and roughage.

Formula:

Semoxydrine HCl (Methamphetamine HCl) 5 mg.; Pentobarbital 20 mg.; Ascorbic acid 100 mg.; Thiamine HCl 0.5 mg.; Riboflavin 1 mg.; Niacin 5 mg.

1. Eisfelder, H. W., Am. Pract. & Dig. Treat., 5:778 (Oct.) 1954.

2. Sebrell, W. H., Jr., J.A.M.A., 152:42 (May) 1953.

3. Sherman, R. J., M.D., Medical Times, 82:107 (Feb.) 1954.

Write for 60-10-70 Diet pads, Weight Charts, and samples of Obedrin.

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—Continued from page 122a

disease were given anti-coagulant therapy using phenylindanedione. Dangerously low (less than 5 per cent) prothrombin levels developed during therapy and then small doses of vitamin K_1 were given intravenously. The prothrombin activity was restored quickly to the therapeutic range, according to English, Townsend, and Cameron in *Canad. Med. Assoc. J.* [72:184 (1955)]. In four controls the prothrombin level remained at the 5 per cent level for 24 hours and then gradually returned to the therapeutic range.

Nitrofurantoin in Urinary Tract Infections

Nitrofurantoin produced symptomatic improvement in 30 to 36 cases of chronic urinary tract infections and in 12 of 13 acute infections. Most of the patients treated previously had failed to respond to treatment with antibiotics or chemotherapeutic agents. Trafton *et al.* also reported in *New England J. Med.* [252: 333 (1955)] that of the 47 organisms recovered from the patients with chronic infections, 25 were cleared for the period of the study and 7 others were cleared for 2½ to 7 months. Seven of 10 organisms isolated from the acute cases were also cleared.

Strains of *Pseudomonas aeruginosa*

did not, however, respond to treatment. Most of the strains of *E. coli*, *A. aerogenes*, species of proteus, *S. faecalis*, and species of micrococcus were eliminated.

Side reactions to the drug were mostly mild gastrointestinal disturbances, observed in only 15 of 60 patients given the drug. Decreased tolerance to the drug was shown by 4 of 11 patients receiving a second course.

Isoniazid with Streptomycin Most Effective Tb Therapy

Four courses of therapy were evaluated in 593 patients with pulmonary tuberculosis. Clinical results were very similar from the four courses but radiographic studies showed that 200 mg. of isoniazid orally with 1 Gm. of streptomycin intramuscularly daily was superior to the other three courses, according to a report of the Medical Research Council reported in *Brit. Med. J.* [NO. *1911*:435 (1955)]. Other courses tried were 200 mg. orally of isoniazid daily with 1 Gm. of streptomycin twice weekly, with 20 Gm. p-aminosalicylic acid in 4 divided doses daily, or with 10 Gm. p-aminosalicylic acid daily. However, the first named course was not as effective as some of the others in preventing the emergence of isoniazid resistant organisms. About 75 per cent of the patients in each group were found to be bacteriologically negative after three months.

Hydrocortisone Suspension in Nasal Allergic and Infectious Conditions

Aware of the benefits derived from hydrocortisone orally administered to sufferers with allergic disorders, the author, Mortimer B. Rohen *Annals of Allergy* [*13*:109 (1955)], undertook studies with two series of patients to determine the effects of hydrocortisone suspension topically administered. For this purpose, the nonsoluble hydrocortisone was used in a ratio of 20 milligrams to one cubic centimeter of normal saline solution. Three to five drops of the resulting mixture were instilled into each nostril three times daily. The condition of the patients with allergic rhinitis was markedly improved after two days of treatment: both discharge and swelling had subsided to a degree which left the affected structures almost normal in appearance. In the second series, patients with infectious rhinitis, the effects of the treatment were even more dramatic since the initial signs and symptoms were intensified and aggravated by severe congestion and copius accumulations of mucopus. In all cases, the appearance of the affected membranes was greatly improved, the discharge had either ceased or was slight, and the edema and inflammation were greatly reduced. As the amount of the discharge diminished, the cough subsided. The author has employed hydrocortisone suspension for periods up to three months without deleterious side-effects and without de-

velopment of tolerance to the drug. The topical application of hydrocortisone suspension, it would seem, provides valuable adjunctive aid in controlling allergic and infectious nasal conditions.

Jaundice from Chlorpromazine Therapy

Jaundice occasionally occurs as a result of the administration of chlorpromazine. Four such cases were studied and the results reported by Loftus *et al.* in *J.A.M.A.* [157:1286 (1955)]. The laboratory findings are essentially the same as those usually found with extrahepatic biliary obstruction. However, the type of jaundice is not usually that suggested by the laboratory tests. Effective therapy is essentially the same as for viral hepatitis, that is, restricted activity, high caloric diet, supplemental vitamins and discontinuation of the chlorpromazine. There does not appear to be measurable evidence of cellular liver damage during the course of treatment, even though the jaundice may persist for as long as several weeks.

The authors, therefore, emphasized that thorough consideration should be given before surgical treatment is recommended for a patient in whom jaundice develops during therapy with chlorpromazine.

Reserpine Combination Effective in Hypertension

Hypertension responded to therapy with reserpine in combination with

Apresoline or with hexamethonium in cases where no significant clinical response had been obtained with reserpine alone. Among 15 patients given reserpine and Apresoline, 87 per cent showed a significant reduction in blood pressure while 33 per cent became normotensive. Among 32 patients given reserpine and hexamethonium, the results were 84 per cent and 47 per cent, respectively.

Hughes, Dennis and Moyer also reported in *Am. J. Med. Sci.* [*229*:121 (1955)] that the use of reserpine with Apresoline greatly reduced the incidence and severity of side effects. With hexamethonium, reserpine reduced the amount of hexamethonium required and the severity of side reactions and provided a more stable blood pressure response.

Pentolinium Tartrate Effective in Hypertension

Pentolinium tartrate (Ansolysen) was found to be effective for the initial control of hypertension, according to Ashby, O'Neill, and Maclean in *The Lancet* [*268*:224 (1955)]. They found that the diastolic pressure could be reduced from almost any value to 80 mm. Hg for 3 or 4 hours in cases of essential hypertension and in a few cases of malignant hypertension.

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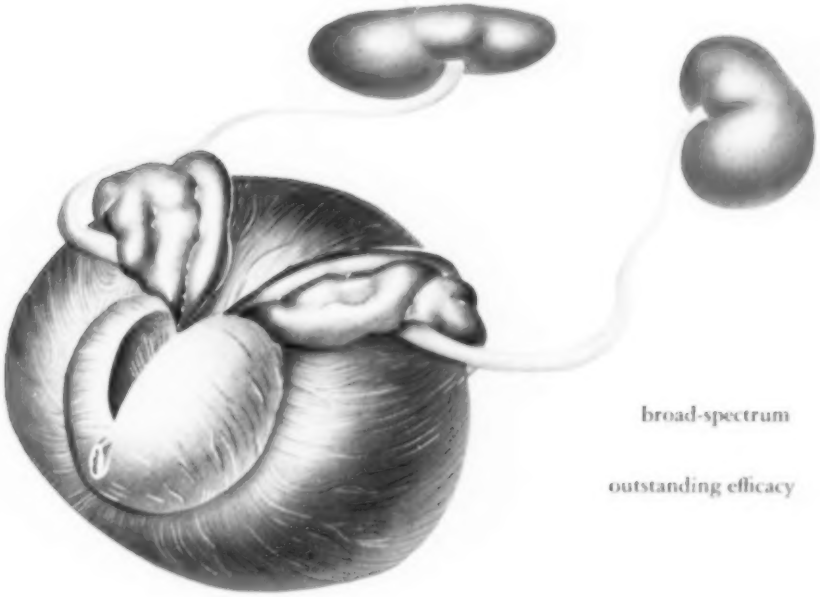
in severe urinary tract infections



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CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

References

(1) Jones, C. P.; Carter, B.; Thomas, W. L., & Cavallick, R. N.: *Obst. & Gynec.* 5:365, 1955. (2) Balch, H. H.: Md. Surgeon 115:419, 1954. (3) Altemeier, W. A.; Culbertson, W. R.; Sherman, R.; Cole, W., & Elston, W.: *J.A.M.A.* 157:305, 1955. (4) Kutscher, A. H.; Sequin, L.; Lewis, S.; Firo, J. D.; Zegarelli, E. V.; Bankow, R., & Segall, R.: *Antibiotics & Chemotherapy* 4:1023, 1954. (5) Clapper, W. E.; Wood, D. C., & Burdette, R. L.: *Antibiotics & Chemotherapy* 4:978, 1954. (6) Sanford, J. P.; Favour, C. B.; Harrison, J. H., & Mao, E. H.: *New England J. Med.* 251:810, 1954. (7) Sanford, J. P.; Favour, C. B., & Mao, E. H.: *J. Lab. & Clin. Med.* 45:540, 1955. (8) Feldon, G.: *J. Am. M. Women's A.* 10:51, 1955.

—Continued from page 128a

The major symptoms of hypertension, headache, breathlessness, and giddiness, were relieved in 75 per cent of the patients. Angina, sometimes considered a contraindication of treatment, was ameliorated in 82 per cent of the cases. Epistaxes that had previously occurred repeatedly, did not recur in 11 of 12 patients for a period of up to 12 months.

The authors recommended, however, that pentolinium tartrate not be used in general practice because of the occasional severe reaction which requires prompt counter measures.

Myleran Useful in Chronic Myeloid Leukemia

Myleran (1,4-dimethanesulphonyloxybutane) was used in 31 patients with chronic myeloid leukemia during a four-year trial. Galton and Till reported in *The Lancet* [*268*:425 (1955)] that therapy brought about a rapid relief of symptoms, a steady rise in hemoglobin and splenic regression. Although the splenic regression was not as rapid as with radiotherapy it was equal in extent and there were less side effects than with radiotherapy.

The authors concluded that, although Myleran is statistically insufficiently proven, it does appear to be a satisfactory substitute for radiotherapy where necessary.

Use of Endocrines in the Therapy of Prostatic Carcinoma

Endocrine therapy is required for all patients in whom the cancer has ex-

—Continued on page 132a

—Continued from page 130a

tended beyond the capsule of the prostate. Carroll and Brennan reported in *J.A.M.A.* [*157*:381 (1955)] that the intramuscular injection of hydrocortisone every other day and the administration of chlorotrianisene (Tace) daily seemed to be the best palliative treatment. Orchiectomy should be performed.

The advantages claimed for chlorotrianisene were: (1) long duration of action related to storage and subsequent regular liberation from body fat, (2) lack of effect on adrenal and pituitary glands, (3) lack of side effects such as nausea, anoresia, or edema, (4) improvement when given in place of other estrogens which have failed to give relief, and (5) apparently prolonged survival time.

Therapeutic Effect of Chlortetracycline and Oxytetracycline in Mice Treated with Cortisone

It has been found that cortisone given in large doses impairs the defenses of animals to infection. When cortisone was administered to non-immunized mice, chlortetracycline and oxytetracycline did not protect the animals against streptococcal infections. However, immunized mice similarly treated were protected by the antibiotics. Apparently, these two antibiotics require host defense mechanisms to complete their chemotherapeutic effect in non-immunized mice. When these defenses are impaired with cortisone the antibiotics are not therapeutically effective. In contrast, Foley reported in *Antibiot. and Chemother.* [*5*:1 (1955)], that peni-

—Concluded on page 134a

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KONDREMUL (Plain)—Colloidal emulsion of mineral oil and Irish moss...pleasant-tasting and non-habit-forming. Contains 55% mineral oil. Supplied in bottles of 1 pt.

KONDREMUL WITH CASCARA—0.66 Gm. nonbitter Ext. Cascara per tablespoon. Bottles of 14 fl.oz.

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KONDREMUL® (PATCH)

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THE E. L. PATCH COMPANY
STONEHAM, MASSACHUSETTS

—Concluded from page 132a

cillin is effective in cortisone treated non-immunized mice. In immunized mice the host defenses and the action of penicillin proceed independently of each other.

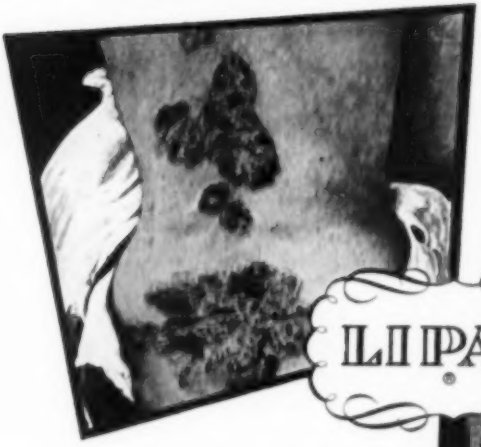
The authors stated that these results suggest that better clinical response with chlortetracycline and oxytetracycline might be obtained in hosts in which some immunity against the invading organisms is present or could be induced.

Tetracycline in Typhoid Fever Treatment

Tetracycline was administered after meals in three divided doses to a daily total of 50 to 100 mg. per Kg. body weight to 25 patients with typhoid fever. As compared with the results obtained with chloramphenicol, the results obtained with tetracycline were good in 32 per cent, fair in 28 per cent, and poor in 40 per cent of the cases. However, as Sanchez et al reported in *Antibiotic Med.* [*1*:30 (1955)], there was a favorable effect on the toxemia and general condition of the patients from the 3rd or 4th day of treatment. The causative agent was not isolated from the feces during the treatment period. Vomiting occurred in only 7 patients and diarrhea in 2 but, in no case did these symptoms require discontinuation of therapy. Severe intestinal hemorrhage occurred in one patient. A relapse occurred in one patient but the fever disappeared spontaneously.

The authors stated that there is no question but that tetracycline therapy is inferior to chloramphenicol therapy in typhoid fever.

'Incurable disease'?



The phrase "incurable disease" is fast disappearing from the physician's vocabulary. Yet, you will agree, it is impossible to eliminate this term from the easily diagnosed, annoying skin disease, . . .psoriasis.

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Clinical evidence indicates that psoriasis may be caused by a disturbance of lipid metabolism, evidently due to deficiency of pancreatic enzymes.

*

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LIPAN Capsules, clinically effective in 90% of treated cases.*

LIPAN . . . . . *and nothing but LIPAN*, as maintenance regimen, keeps patients free of lesions.**

AVAILABLE in bottles of 180 capsules through prescription druggists.

*Harris, O. J., et al.: Whole Defatted Pancreatic Substance in the Treatment of Psoriasis. Journal Lancet, 72:7 pages 328-330. (July 1952)

**Gumbs, F. C.: Management of Psoriasis as a Metabolic Lipid Disturbance... New York State Journal of Medicine, 54:13 pages 1945-1949. (July 1954)

Complete literature and reprints upon request.

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NEWS AND NOTES

New Drug Key to New Anesthetic Technique

A new drug which permits consciousness a few minutes after surgery and reduces the possibility of complications without reducing pain relief, was reported recently by Dr. Francis F. Foldes, chief anesthesiologist at Mercy Hospital in Pittsburgh. The report was based on a study of 1,603 operations.

Reporting at the annual meeting of thme American Medical Association, Dr. Foldes, who is assistant professor of anesthesiology at the University of Pittsburgh, School of Medicine, said that the new drug, levallorphan tartrate, was used in conjunction with Nisentil, a short-acting narcotic analgesic, at the suggestion of Dr. Leo A. Pirk of Nutley, N. J.

Drs. E. Lipschitz and G. M. Weber of Mercy Hospital and Dr. M. Swerdlow of Manchester, England cooperated in this study.

Dr. Foldes said that pain relieving drugs, together with barbiturates and nitrous oxide-oxygen, are customarily used to produce anesthesia for surgical operations. Doctors have attempted to give larger doses of pain-killing drugs and smaller doses of barbiturates in order to make possible a more rapid recovery of consciousness after an operation. However, with this procedure the

patient's respiration frequently became depressed.

To overcome the ill effect of large doses of pain-killing narcotics on respiration, Dr. Foldes used an anti-narcotic, called levallorphan, developed in the research laboratories of Hoffmann-La Roche Inc., together with Nisentil. The effects of this new combination were observed in 852 patients undergoing different surgical procedures lasting from one-half to over three hours. The results were compared with the observations made in another group of 750 patients who received Nisentil without levallorphan.

Dr. Foldes and his associates found that levallorphan prevented depression of respiration but did not interfere with the pain-relieving effect of Nisentil.

They also found that because of the larger doses of the anesthetic which could be used safely in combination with levallorphan, the patients needed less barbiturate, and consequently regained consciousness more rapidly after surgery. The patients were surprisingly alert; more than nine out of ten patients regained consciousness, and the majority of them were able to answer questions within five minutes after the end of surgery.

Dr. Foldes also noted that the patients' general condition was excellent during and after surgery. No serious changes were observed in respiration or circulation. Many of the patients did not require any pain-relieving drugs during the first 24 hours after operation.

The combination of Nisentil and levallorphan was especially useful in

very old and very ill patients.

Dr. Foldes stressed that this new method still has to be considered an experimental procedure. Until further extensive trials are made with it, it should only be used by experienced anesthesiologists.

Edema May Warn of Pre-Eclampsia

In very early stages of developing pre-eclampsia, edema usually precedes hypertension and thus gives a warning sign, according to references cited in the *Diuretic Review*.

Physicians Seek Facts on Leukemic Twins

Two Minneapolis physicians today urged their colleagues to report cases of leukemia, a serious blood disease, when it occurs among twins, since evidence about hereditary factors in the disease is scarce.

They estimated that over a 10-year period there would be no more than about 450 cases of leukemia among twins in this country. They also said the chances of leukemia occurring in each of a set of identical twins appears to be about one in 2,000. Reports showing the exact incidence of the disease among twins could help to establish whether heredity is a prime factor, a secondary factor, or of no importance in the development of the disease.

The discussion by Drs. Ray C. Anderson and Harold W. Hermann appeared in a recent issue of the *Journal of the American Medical Association*.

They reported on two sets of identical twins in which three of the chil-

—Continued on page 140a

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with hydrocortisone

companion product to regular

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. . . in nasal allergy and infection . . .

*penetration of the mucous barrier makes the difference

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supplied: *Biomydrin F Nasal Spray (on prescription only); and Biomydrin Nasal Spray in ½ ounce atomizer. Also available, Biomydrin Nasal Drops, ½ ounce bottle with dropper.*

dose: *Adults: 2 or 3 sprays in each nostril 4 or 5 times a day as needed. Children: 1 or 2 sprays in each nostril 4 or 5 times a day, as needed.*

NEPERA CHEMICAL CO., INC.
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NEWS AND NOTES

—Continued from page 138a

dren were fatally stricken by the presently incurable disease. One twin girl was fatally stricken by the disease but the other still appeared healthy several years later. In the other set each twin was stricken.

The physicians said these reports were like others made previously since they yielded no evidence whether a second twin is likely to suffer the disease after one twin is stricken. They said it would be helpful if all information about leukemic twins could be reported to centers involved in leukemia research.

A.M.A. Committee Recommends Aspirin Box Warning

All packages containing aspirin or other salicylate compounds should bear a clear warning, "keep out of the reach of children," according to the Committee on Toxicology of the American Medical Association.

Pointing out that oil of wintergreen and aspirin are forms of salicylates most often involved in childhood poisonings, a report adopted by the committee also recommended:

That the label should state "Consult your physician on dosage for children under three years of age."

That individual pills be wrapped in metal or plastic foil that cannot be easily removed by children, or that the container have a top which closes automatically.

That the number of tablets in each container of children's aspirin should be limited.

—Continued on page 142a

NO ONE IS COMPLETELY IMMUNE

BONAMINE*

BRAND OF MECLIZINE HYDROCHLORIDE

Motion sickness afflicts people of all ages because almost everyone is sensitive to labyrinthine irritation induced by travel on land and sea and in the air.

Bonamine has proved unusually effective to prevent and treat this minor but distressing complaint. And a new agreeable method of administration is now offered by the incorporation of this well-tolerated agent, with its prolonged action, in a pleasantly mint-flavored chewing gum base. 90% of the drug content becomes available in only five minutes of chewing.

Bonamine is also indicated for the control of nausea, vomiting and vertigo associated with labyrinthine and vestibular disturbances, postoperative status, Meniere's syndrome and radiation therapy.

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Bonamine Tablets *(scored and tasteless) 25 mg.*

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Bonamine Chewing Tablets *25 mg.*

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—Continued from page 140a

The committee's report, published in a recent issue of the *Journal of the Medical Association*, was originated by the committee on accident prevention of the American Academy of Pediatrics. A similar report was adopted at a recent meeting of representatives of industry, medicine, and pharmacy called by the federal Food and Drug Administration.

Of 113 deaths in the United States known to have been caused by salicylate compounds in 1952, 36 occurred in children under five years of age. Forty-one of these were caused by aspirin, the report said.

"The frequency with which aspirin is involved in childhood poisoning calls for preventive measures," it said.

Families with small children are urged to use caution in handling salicylate compounds, particularly flavored aspirin.

Inadequate Diet Causes Less Anemia Than Was Expected

Anemia in persons living in a "backward rural area where the diet is notoriously deficient" appears to be less common than was expected, according to a survey reported in a recent issue of the *Journal of the American Medical Association*.

However, the majority of 90 cases of anemia were caused by iron deficiency and inadequate diet.

The survey was conducted by J. J.

—Concluded on page 144a

ANOREXIGENIC INDICATED?

consider this "obligation":

"The treatment of obesity by diet . . . leaves the medical attendant with an obligation to maintain mineral balance as well as to avoid avitaminosis."[1]

FOR SAFE OBESITY CONTROL

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DOSAGE: Two or three capsules daily, one-half hour before meals.

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Dextro-Amphetamine Sulfate U.S.P.	5 mg.
these for nutrition:	
Vitamin A (Palmitate)	5,000 U.S.P. Units
Vitamin D (Irradiated Ergosterol)	400 U.S.P. Units
Thiamine HCl U.S.P.	2 mg.
Riboflavin U.S.P.	2 mg.
Pyridoxine HCl U.S.P.	0.5 mg.
Niacinamide U.S.P.	20 mg.
Ascorbic Acid U.S.P.	37.5 mg.
Calcium Pantothenate	3 mg.
Calcium (from Dicalcium Phosphate)	242 mg.
Cobalt (from Cobaltous Sulfate)	0.1 mg.
Copper (from Cupric Sulfate)	1 mg.
Iodine (from Potassium Iodide)	0.15 mg.
Iron (from Ferrous Sulfate)	3.33 mg.
Manganese (from Manganous Sulfate)	0.33 mg.
Molybdenum (from Sodium Molybdate)	0.2 mg.
Magnesium (from Magnesium Sulfate)	2 mg.
Phosphorus (from Dicalcium Phosphate)	187 mg.
Potassium (from Potassium Sulfate)	1.7 mg.
Zinc (from Zinc Sulfate)	0.4 mg.

1. Vernon, S.: Nutritional Deficiency, Clin. Med., Oct., 1950.

—Concluded from page 142a

Kirschenfeld, M.D. and H. H. Tew, M.S., Fort Deposit, Ala.

Most of the patients were from Lowndes County, Ala. The basic industry is farming, and the important products are cotton, corn, peanuts, cattle, and wood.

"The economic status of a large proportion of the population is rather precarious, but improving," the authors said.

"The chief ingredients of the diet, especially in the Negro population, are corn, pork, lard, and vegetables such as potatoes, turnips, field peas, and collards," they said. "Fruit is rare, and beef, eggs, and milk are scarce. . . . To a large extent it is only in the summer months and in the fall that fresh vegetables are available."

Ninety of the 500 patients in the survey showed anemia, a total of 18 per cent. This compares with rates ranging from about 3 to 12 per cent in similar studies conducted in recent years in other areas of the country.

Incidence of anemia was about 10 or 15 per cent in the white patient population and 20 to 25 per cent in the Negro population.

"Anemia was apparently twice as common in the Negro population," the authors concluded.

Inadequate diet caused 22.2 per cent of the cases, while excessive blood loss and pregnancy each caused 22.1 per cent. Other causes were acute and chronic infections and rheumatoid arthritis.

Iron deficiency cases were based on inadequate iron intake, excessive iron loss or iron need due to growth, pregnancy, lactation, menstruation or other loss of blood.

"A large majority of the patients responded well to increased proteins in the diet, the addition of iron, and the correction of any excessive blood loss or infection," the authors said.

Salt Lost in Surgery

It is often not realized that when a large volume of fluid is removed from the chest by thoracentesis, or from the abdomen by paracentesis, dissolved salt is being removed simultaneously. Administration of salt may be indicated in some of these patients, according to an article in the *Diuretic Review*.

RIASOL

for Summer Comfort in PSORIASIS

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RIASOL'S unique formula has met with outstanding success in psoriasis. In most cases the unsightly lesions yield promptly to its effective action and often do not recur for long periods. Itching, if present, is usually alleviated.

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RIASOL contains 0.45% mercury chemically combined with soaps, 0.5% phenol and 0.75% cresol in a washable, non-staining, odorless vehicle.

Apply daily after a mild soap bath and thorough drying. A thin, invisible, economical film suffices. After one week, adjust to patient's progress.

RIASOL is supplied in 4 and 8 fld. oz. bottles at pharmacies or direct.

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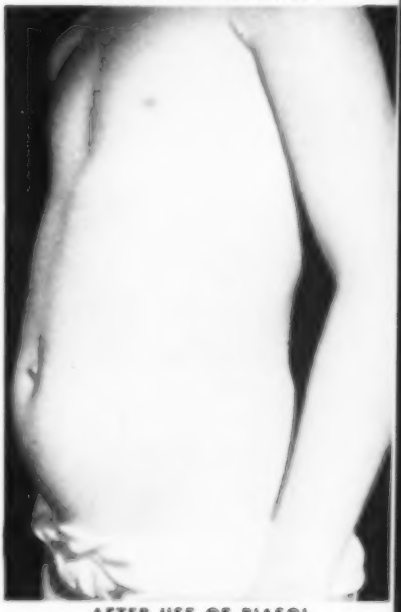

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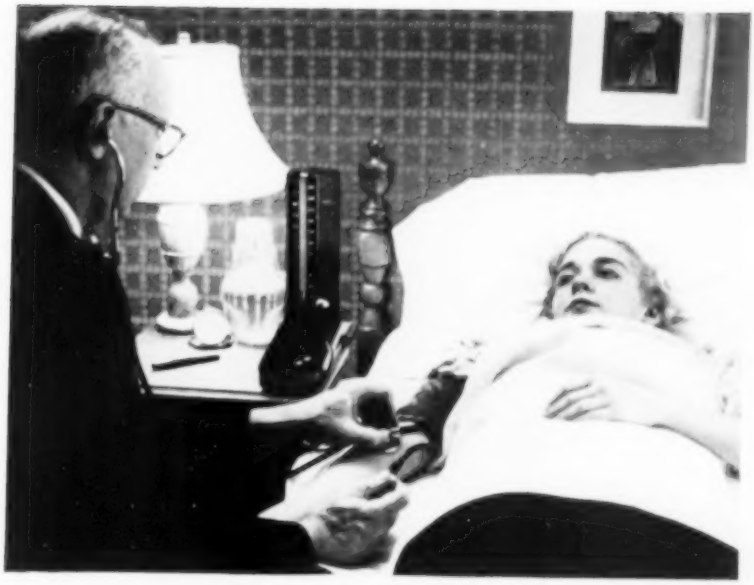

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References: 1. J.A.M.A. 153:1516, 1953. 2. M. Clin. North America 27:189, 1943. 3. Surgery 18:200, 1945. 4. N.N.R. 1954, p. 107.